



SPU Water System Advisory Committee (WSAC)

March 18, 2015 Meeting Notes
Seattle Municipal Tower, 700 Fifth Avenue

Room 5965

5:30 pm – 7:30 pm

Chair: Kyle Stetler

Vice-Chair: Kelly McCaffrey

Committee Members & CAC Staff	Present?	SPU Staff & Guests	Role
Tom Grant	Y	Sally Nickelson	Watershed Management Division
Jessy Hardy	N	Alex Chen	Water Planning and Program Management
Chelsea Jefferson	Y	Rick Scott	Deputy Director, Water LOB
Kelly McCaffrey	Y		
Kyle Stetler	N		
Chris Thompson	N		
Heidi Fischer, CAC Program Support	Y		
Julie Burman, Policy Liaison	N		
Sheryl Shapiro, Program Manager	Y		

PLEASE NOTE ACTION ITEMS ARE V MARKED AND HIGHLIGHTED IN YELLOW

Regular Business

- Committee Members, SPU staff, and guests introduced themselves.

Water Supply Outlook: Alex Chen, SPU Water Planning Program Management

- Seattle’s current water supply outlook remains good.
- We have been storing additional rainfall in our reservoirs and making operational adjustments to compensate for lower-than-normal snowpack.
- SPU has tools and operational strategies in place to manage supply:
 - Holding more water: Water levels in our mountain storage reservoirs are being held above normal to augment the low snowpack.
 - System monitoring and operational changes: Snowpack, rainfall and other water resource factors are monitored daily. We make operational changes on how we capture and release water, as well as how we move it through the water supply system, based

on snowpack and predicted rainfall. Adjustments are continuously made to balance water supply, flood management, hydropower and fish habitat.

- SPU owns and maintains two watersheds: the Cedar River Watershed and the smaller South Fork Tolt River Watershed. These watersheds supply the water for SPU's retail and wholesale customers.
 - Alex referred to a graph, "Cedar River at Reservoir, Water Year 2015."
 - The heavy black line represents this year's actual Chester Morse Lake elevation (Chester Morse Lake is the main body of water that feeds the Cedar River).
 - The solid blue line near the top is the lakes' normal highest elevation. If we don't meet it, we can still have a normal water year. We can also go slightly above without having problems.
 - The shaded blue areas near the bottom depict the monthly amount of precipitation in the Cedar River Watershed since October 2014 (water is tracked over a year from October to October), and are compared to the average precipitation, represented by the dashed black lines.
 - Rainfall in the watershed has been close to normal through mid-February, but has so far fallen below the average in March.
- Generally, in winter and early spring, we manage water levels at the reservoirs down to absorb extra rain, and keep storage at a lower elevation compared to the late spring and early summer.
 - In summer, we're out of flood season and we manage the supply to increase reservoir storage. The reservoirs are typically drawn down throughout the summer as releases for municipal supply, fish, and other purposes exceed the amount of water entering the reservoirs.
 - In September and October, we go back into flood season and lower reservoir elevations to better manage large rain events and flooding.
 - This year, we are holding more water in the reservoir than normal in the spring to make up for the expected lack of melting snow pack.
- Alex referred to a graph, "South Fork Tolt River at Reservoir, Water Year 2015."
 - The Tolt River has a north and a south fork. SPU has a dam and a reservoir at the south fork.
 - The heavy black line represents this year's actual South Fork Tolt River water elevation levels in the reservoir.
 - The dashed green line represents the general target elevation levels.
 - We are currently four feet above the general target elevation levels in the reservoir, and are relying on rainfall to get to the full target, depicted here by the varying red line.
- Alex referred to a graph, "Calendar Year 2015, Cedar River Instream Flows..."
 - The heavy blue line depicts this year's actual flows, which are much higher than normal minimum targets.

- Water is measured here in cubic feet per second (cfs), which is the quantity of water equivalent to a stream one foot wide by one foot deep flowing at a velocity of one foot per second.
 - We maintain minimum flows in the river, and our target is shown by the shaded blue area at the bottom of the graph, or about 270cfs. The normal minimum flow drops in the summer, and comes up again in the fall.
 - We also have targets for supplemental flows if water is available (for example, supplemental flows released in cooperation with the Muckleshoot tribe to support salmon).
 - Rick Scott noted that SPU also must occasionally release water from the Tolt Reservoir to control water temperature for fish.
- ❖ Question: How much greater than 2000 cfs (cubic feet per second, the rate of water flow) (the maximum water elevation shown in the graph) would the flow have to be to result in flooding downstream?
- Answer: Low lying areas could be affected soon after 2000 cfs. At 1800 cfs, we start to worry about scouring salmon redds (spawning areas).
- Alex referred to a graph, “Calendar Year 2015, South Fork Tolt River Instream Flows...”
 - Again, the heavy blue line depicts this year’s actual flows, which are well above the normal minimum targets depicted by the shaded blue area.
 - SPU’s operational strategy to deal with low snow pack is to go into refill mode early.
 - Specific Near Term Actions:
 - Raise SF Tolt Ring Gate early March, which is two months earlier than usual
 - Close Masonry Dam Service Spillway early March
 - End supplemental flows (105 cfs) on 3/26, still meet goal of providing flow 70% of the days 2/11 to 4/14
 - Flood management
 - Specific Long Term Actions (as needed):
 - Maximize SF Tolt in peak demand period
 - Allocation of Cedar R. Non-Firm Block - up to 3,500 Ac-Ft. June 17 to August 4
- ❖ Question: Has the Seattle water supply been in the news?
- Answer: The Governor declared a drought in three regions of the state, but not in Seattle. The criteria included a forecast of water flows of 75% of normal or less, AND a resulting economic hardship. Seattle’s flows are less than 75% of normal, but we expect a normal water year and therefore are not expecting a resulting economic hardship.
- Those areas that were declared to be in a drought can apply for drought funding. For Seattle, Tacoma, and Everett, the water supply for 2015 is expected to be normal.

- ❖ Question: What are the chances of not getting enough rainfall for the current strategy to result in a normal water supply for this year?
- Answer: If we have normal rainfall from now until June, our reservoirs will be full and water supply will be normal. If we have below average rainfall, even 50% of the average, we expect that the water supply will still be normal or close to normal, but we are continuing to monitor and analyze the situation.

- ❖ Question: What spring month typically brings the most rainfall?
- Answer: February is typically the month with the most rainfall, when we have to manage the reservoirs to maintain space for flooding. For every inch of rain that we get in the watershed, reservoir levels go up about one foot.

Knotweed Treatment in the Municipal Watershed: Sally Nickelson, SPU Watershed Management Division

Sally referred to a power point presentation.

- Knotweed is an extremely aggressive non-native plant that out-competes most native plants, and it's growing in the watershed.
- Unlike native plants, knotweed pulls most of its nutrients into the roots, and therefore does not leave as many nutrients in the soil when leaves drop.
- Knotweed displaces native plants, disrupts the food chain, and changes the soil's chemistry. It destabilizes streambanks, and provides no food or nesting habitat to animals (none of the native mammals use knotweed for food or shelter).
- Numerous mechanical control methods have been tried:
 - Digging up the plants
 - Knotweed can grow a new plant from a piece of root a quarter of an inch long, so this only ended up spreading the infestation.
 - Burying the plants
 - Plants survived and grew up from under nine feet of fill.
 - Cutting the plants
 - After 6 years of using this approach to starve the plants, the plants kept growing back.
 - Covering the plants
 - This can be effective on very small patches to starve the roots by covering the plants with heavy duty fabric to block out the light, but it requires a lot of labor and is therefore very expensive. It did not work on larger patches even after 8 years of continual maintenance.
- In 2009, we began looking for an herbicide that would be effective and after significant research, identified Imazapyr.
 - Imazapyr has low toxicity (less than the common household herbicide Roundup), targets enzymes only found in plants, is water soluble, and does not bio-accumulate like DDT, or

dichloro diphenyl trichloroethane (an insecticide that was commonly used until the 1970s).

- It degrades rapidly in sunlight in water, with a half-life of 2-5 days in water (half-life is the time it takes for a substance to lose half of its pharmacologic or physiologic activity)
- We had a leading environmental toxicologist with no ties to the chemical industry (WSU's Dr. Felsot) do an analysis of Imazapyr. He found that it had a nil (practically zero) effect on water quality.
- In the 1980s, Seattle prohibited the use of herbicides in the City's watersheds, so we had to get permission to use Imazapyr.
 - Back then, herbicides were not used on invasive plants, but were sprayed indiscriminately to control brush along the roadside.
 - In 2009, we asked for an ordinance that would allow us to use Imazapyr to fight knotweed in the watershed area. The City Council passed one in 2010 that allowed us to use it for three years with regular reports on its impacts.
 - We knew three years would not be sufficient to solve the problem, but chose that time period for maximum accountability and transparency.
 - The first three years was a pilot test program, and it went well. The same wording and limitations were used when the ordinance was renewed in 2013 for a second three year period.
 - We've been successful but the knotweed is not quite gone.
 - Using Imazapyr is not an ongoing plan, but we will be asking for another three year ordinance to use it through 2018.
 - Some of the current Council Members are familiar with the history of this program, so we're trying to get ahead of the curve by asking the Council to authorize the ordinance now.
- Sally showed some slides showing progress over the years of treatment. Big gaps appear after two years, but the root system remains. There's still biomass below ground after three and four years.
- The Rattlesnake Lake area has had five treatments so far.
- The maximum legal amount per acre is 96 ounces, and we did not even use half of this amount. At our maximum, in 2010 the average number of ounces used per acre was 43, and usage has decreased over the years to an average of 7 ounces per acre.
 - The cost also comes down each year because less staff time and less herbicide is required.
- Fortunately, the knotweed is not located right along the river. The closest plants are 250 feet away.
- We use a 1% solution to spray on the knotweed, and our backpack equipment allows targeted application.
 - Roundup is licensed for using for stem injection, but Imazpyr is not. With stem injection, herbicide is injected into the hollow stems of knotweed, but the thousands and

thousands of stems would make this approach labor intensive and therefore very expensive. Further, stem injection requires at least five times more of the herbicide.

- We test the municipal water supply after each application of Imazapyr.
 - Our detection method would allow us to see an amount as low as 0.02 parts per billion, and we've never found any Imazapyr in the municipal water supply.
- Other invasive plants, such as blackberry, locust, scotch broom, and mullein, are also a concern. But we only use Imazapyr on knotweed.
 - Blackberry takes several years of grubbing it out. After that, it's small enough that native plants can compete with it.

❖ Question: Who sets the maximum usage limits for Imazapyr?

➤ Answer: The Federal Environmental Protection Agency.

❖ Question: How many treatments will be needed?

➤ Answer: Most rivers in western Washington State have knotweed. The Olympic Peninsula started using Imazapyr earlier than we did, and reports that it takes at least eight years of treatment (perhaps more) to eradicate knotweed. If we get down only occasional plants, we may be able to smother it by covering it with fabric.

❖ Question: Are the knotweed plants weaker when they grow back after some kind of treatment?

➤ Answer: We don't know, but they do tend to come back smaller.

❖ Question: How long does Imazapyr stay toxic? Does it break down?

➤ Answer: In water and sun, it has a very short half-life. The concentration will go down to half of what it was within 2-5 days. In soil, Imazapyr can last days to months, but it is water soluble. In acidic soils, which the area has a lot of, it's less mobile. But we apply the spray just to the leaves, not until it's soaking into the ground. We can see Imazapyr's blue dye in the leaves' veins soon after spraying.

❖ Question: Have you done any soil testing?

➤ Answer: No. But if Imazapyr moves from the soil into the water, it would break down quickly.

❖ Question: To what area is knotweed native?

➤ Answer: Knotweed originated in Asia. We have mostly what is known as bohemian knotweed, which is a hybrid of Japanese and giant knotweed. Because it's a hybrid, it has increased vigor and is hard to kill.

❖ Question: How does knotweed spread?

➤ Answer: It spreads mostly by the root and stem fragments being moved by animals, people, and water. Some seeds are fertile, but we are not seeing a spread pattern consistent with growth from seeds.

- ❖ Question: Will water testing continue?
- Answer: Yes, we put the water testing requirements into the ordinance each time we ask for a renewal.

- ❖ Question: Will the EPA be relaxing control of Imazapyr?
- Answer: No. The EPA has standards that must be followed for every chemical based on toxicology tests.

- ❖ Question: How do other cities handle knotweed?
- Answer: San Francisco uses multiple chemicals to treat lots of invasive species. Tacoma uses herbicides in their watershed.

- ❖ Question: Is the Imazapyr applied above or below where we take water?
- Answer: The area we are treating is in the municipal watershed above Landsburg, where municipal water is withdrawn. King County is treating the Cedar River from Landsburg to Renton now. We are mindful that these are the headwaters and we want to avoid being a source of knotweed re-infestation in the areas King County has already treated.

- ❖ Question: Is Imazapyr a generic or proprietary chemical?
- Answer: It's proprietary, but we can get it from more than one source. We use the aquatic formulation even though we are not spraying it on the water, because it contains no additives.

- ❖ Question: What's the market for Imazapyr?
- Answer: It's targeted to forestry and vegetation management in the right of way. It's not available to the general public even though it is less toxic than Roundup.

- ❖ Question: Is Sally a licensed applicator of Imazapyr?
- Answer: Yes, she is. The crew chiefs are as well.

- ✓ Heidi will send Kelly and Kyle the WSAC support letter from 2009 with updated details for the current ordinance renewal, along with Sally's contact information.

- If WSAC is interested in doing a letter of support for this ordinance's renewal (as WSAC did in 2009), Sally can provide the details needed to update the letter from 2009.
 - Rick Scott added that there's time for WSAC to discuss this further in April, as SPU hopes to make the proposal to City Council in May.

Presenter Feedback Form

- WSAC Members took a few minutes to fill out the presenter feedback forms for Sally.

Around the Table

- One Member reported reading a good book called, “The King of Fish: The Thousand Year Run of Salmon.” She explained that the book discussed what has made salmon a successful species, what they need in terms of resources, and what they contribute to the watershed.
- Another Member noted that the Washington Water Trust is hosting the Wild and Scenic Film Festival, with river-focused films, with details at:
 - <http://www.washingtonwatertrust.org/calendar?id=121>
 - <http://www.wildandscenicfilmfestival.org/events/event/washington-water-trust-2/>

WSAC Business

- January and February notes are approved.
- On March 25th, SPU will be hosting the Protect Our Waters Forum on decentralized water systems and how they fit into the bigger picture. Several WSAC Members plan to attend and the Program Manager encouraged all Members to join them.
- WSAC’s April 15th meeting will be combined with CDWAC’s meeting, and will include an update on SPU’s water quality report, as well as an opportunity for WSAC to provide input on the content and messaging. The agenda may also include an update on the Tolt Transmission line, and some time for further discussion of knotweed and a possible WSAC letter.
- WSAC’s May meeting will also be combined with CDWAC.
- The next joint CAC meeting will be April 29th, and will feature the 2015 implementation schedule for the Strategic Business Plan (SBP), and information on the new districts for the Seattle City Council.

7:30, meeting adjourned.