

HCP Oversight Committee Semi-Annual Meeting

Wednesday December 12, 2012

8:30 AM – 1:00 PM

Seattle Municipal Tower

Final Summarized Meeting Minutes

Members Attending:

Chris Konrad
Norm Winn
Jerry Franklin
Jim Erckmann
Dave Beauchamp
Bob Everitt
Steve Ralph
Buck Smith
Matt Longenbaugh
Richard Bigley
Isabel Tinoco
Cyndy Holtz

Staff Attending:

Suzanne Flagor
Dwayne Paige
Amy LaBarge
Dave Beedle
Sally Nickelson
Rolf Gersonde
Paul Faulds
Tom Fox
Liz Ablow
Aaron Bosworth (WDFW)

Minutes from 12/13/11 and 6/1/11 were approved unanimously

Climate Effects and the HCP – Initial Discussion

This discussion is at the request of two OC members, Jim Erckmann and Chris Konrad, put forth in a letter they submitted April 2012, and endorsed by several other members of the OC. Comments from Cyndy and Jim:

- Discussing Climate Change (CC) is within the scope of the OC responsibilities. This topic provides an opportunity for the OC to become more active.
- Relevant HCP term definitions are Adaptive Management, Changed Conditions, and Unforeseen Circumstances. This discussion falls under Adaptive Management.
- SPU can re-allocate funds within cost categories up to \$50K, if that is deemed appropriate, without an HCP amendment.
- When HCP was written, we did not know enough about CC to predict what would happen, and it was labeled an Unforeseen Circumstance. Impacts from CC are still not reaching the level of a defined Unforeseen Circumstance, (see following definition paraphrased from HCP Page 4.5-63) because the level of adverse effects on listed species/habitats has not yet occurred.
 - “Changes in circumstances affecting a species or geographic area covered by a conservation plan that could not reasonable have been anticipated by plan developers (USFWS or NMFS) at the time of the conservation plan’s negotiation and development, and that result in a substantial and adverse change in the status of the covered species. E.g., severe catastrophic events that are not predictable as to occurrence or severity, such as effects of global climate change, earthquake, forest fires effecting more than 2,000 acres, etc.” It’s important to clarify here that, while climate change may have the potential for these type of effects, they have not caused these type of effects and it is uncertain at this point if and how such effects will occur.

The OC discussed the proposal for the Committee to explore CC. Salient comments:

- There will likely be significant CC effects on upland forests, insect and pathogen disturbance dynamics, fire extent and severity, stream temperatures, stream flows, and possibly HCP listed species.
- Should start analysis now:
 - first need to define the problem
 - use a stepwise approach
 - lay out possible scenarios
 - decide what to track
 - develop contingency plans
 - define possible management tools
 - think about when to use different tools
- Not asking the city to do anything, spend any money right now, just get some additional support focusing on the problem, leveraging energy and expertise of the HCP OC. There is the potential for grant funding, if warranted.
- State & federal agencies in WA are currently developing or have developed CC strategies,
 - It was agreed that they are in general quite superficial, with modest, tempered suggestions. There's still a lot of cultural resistance.
 - However, the Washington state CC adaptation effort is underway, even if it is modest. It should be noted this is a big change for the state.
 - There is the potential to collaborate with this on-going effort, try to get the entire system into a situation to cope with the ecological changes.
 - The state effort would have benefitted from the city's perspective because of its broad management mandate and unique combination of management goals.
 - The city collaborates with other unfiltered watersheds in the Pacific Northwest (San Francisco Public Utilities Commission; Portland Water Bureau; Tacoma Public Utilities Metro Vancouver B.C.; Capital Regional District, Victoria, B.C.) , but there's been little discussion of CC.
- We know there will be altered disturbance regimes (fire, insects both native and non-native, wind, flood)
 - Changes will likely be sudden rather than gradual.
 - For example, none of the climatic models can project our big fires (that occur with the synoptic weather pattern that includes east winds) or marine-generated windstorms (like the huge Columbus Day storm in 1962)
 - What options are there to prepare? To remove sufficient fuels to reduce fire risk may completely alter native ecosystems and be antithetical to HCP late-seral habitat objectives. What other options are there?
- When talk about CC, also need to talk about exotics, invasive species
 - Greatest danger to forests may be insects/pathogens; could be exotics or, as seen in other areas, native species behaving differently.
 - To date, this region has not yet seen extensive tree mortality due to importing non-native insects and pathogens to conifer-dominated forests, unlike forests on the East Coast and mid-west.
 - Increased, more intensive vigilance may be the most important thing we can do – monitoring, long-term plots, etc.
 - Not only exotics, but need to consider geographic shifts in native species ranges.
 - In 50 years, there may be a different suite of species in the watershed. What protection status might these species have in the future?

- CC needs thoughtful, creative efforts, especially how moist west-side forests will be affected
 - Gather group of bright people from different disciplines and brainstorm
 - Good way to get insights
- The watershed is well situated with current level of staffing, level of knowledge about the watershed
- Can CC process be overlain on existing management actions under the HCP? Is the City receptive to accommodate suggested changes?
 - Cyndy: We can have some changes within the HCP structure. We'd need to wait for a proposal from the OC, but yes, the door is open

Staff presentations on key HCP areas potential affected by Climate Change - see attached handouts; additional comments by staff are below:

Upland Forests – Amy LaBarge

- Trying to the forest ecosystem into context of current (changing) management objectives
- Concern that CC may mean future forests won't be able to provide ecological functions they currently provide (e.g., water quality/supply, habitat, carbon sequestration, nutrient cycling, etc.)
- Trees in the 80-90 year range are dying due to a Douglas-fir beetle/Armillaria root disease complex in the lower watershed, but little is known about forest development in that age range. It is unclear if this mortality is part of the natural successional process or if CC might be involved.
- Goals for increasing resilience and HCP habitat goals may overlap, or they may be divergent – needs more evaluation
- Monitoring forest habitat over time is integral to HCP

Fish & Wildlife – Dwayne Paige

- All these subjects (forests, fish & wildlife, aquatic systems, water supply) are interrelated, so thinking about CC needs to be integrated
- Baseline data on fish & wildlife are completed. Data collection was designed to look at species vulnerabilities and to let future researchers come back to resample to detect change.
- We designed the studies to look at groups of species together (behavior, habitat use, interactions).
- Because of large natural variability, need long-term datasets to detect change.
- Models indicate that unless there is major changes in reservoir operation, fish populations are quite resilient
- The greatest vulnerability is in the stream systems, not the lake.

Aquatic and Riparian – Dave Beedle

- These are disturbance based systems
- Included roads because of their huge impact on aquatic and riparian systems
- Under HCP – 2 approaches: long-term aquatic monitoring & project monitoring
- Have modeled natural processes and threats
- Have full road inventory, used to run sediment model – predict how roads interact with aquatic system
- Currently are in the middle of long-term monitoring – 20 sites to look at trends through time, as well as status in current time frame
- Field observations are critical – especially after large storms

- Project monitoring used to guide new project design

River and Reservoir Management – Tom Fox

- CC data assumes gradual change, which may not be accurate
- Need better estimates of year to year perturbations
- Need up to date forecast models to develop climate-altered hydrological modes
- It would be helpful if the OC could help identify the type of monitoring and metrics we'll need. What data should we be focusing on?

Continued OC discussion of Climate Change

- We know a lot about young forests and old-growth, but not much about 80-250 year forests – what is normal, processes
- The book *Rambunctious Garden* by Emma Marris is a good one to stimulate thinking about plant communities in different ways
- There's a wealth of data on CC from around the world we should tap into
 - General ideas/thought processes from around the world are useful, but not the specifics of their systems, as they are very different from here
- Are there historical data from the watershed? Sediment cores?
 - Because of the huge historical disturbance regime, sediment might not help. But pollen might.
- What are the likely weather perturbations we're likely to see?
 - Drier summers? Bigger storms? Less snowpack?
 - Weather fluctuations could be wild and catastrophic
 - Need an overlay of more accurate weather forecasts
- Also need to include invasive species in the lower watershed and Lake Washington.
 - This area is below the area that the OC has been concerned with
 - Walleye, American shad, New Zealand mud snail, Asian clam are all already present
 - No mechanism to monitor their status in the watershed
 - Exotic species in the lake will affect HCP species of concern – anadromous fish have to run the gauntlet
 - Invasives and CC are linked
- Monitoring in lower watershed, lake, ship canal
 - Ship canal is the most vulnerable piece of water in western WA because of water temperature
 - Poses a hazard to salmon – travel through during the peak of hot water
 - The temperature issue/thermal barrier has been a problem for a long time & will be exacerbated with CC. MIT has been involved – it needs to be part of the equation.
 - Army Corps document looking at this is due out soon.
 - 520 bridge effort sidestepped the issue
 - Suggest looking at CC in a holistic way, not just in the municipal watershed and river. Identify the bottlenecks
 - Have fish ladder where we have a chance of seeing invasive fish moving into the CRMW
 - It's an amorphous jurisdictional problem
- The OC can weigh in on Changed Conditions/Unforeseen Circumstances. This can be a reference watershed for other places.
 - We shouldn't wait until we are under the definition of Unforeseen Circumstances – by then it may be too late.

- Possibility to seek external funding
- Should form a subcommittee to work on this issue
 - Less a subcommittee than a standing committee. Should include staff
 - This is a long-term commitment
 - Include ad-hoc members with specialized expertise as needed, but they will not be voting members
 - Keep the group small, then bring in expertise as needed.
 - Consult with state agencies, see what has worked for them
 - First need problem definition and vulnerability assessment. After that can think about how to react.
 - Useful to generate a list of what-ifs, and management implications on the entire system, not just water supply. Need broader look at scenarios above and beyond water supply.

Motion: Appoint a standing committee to look at Climate Change, which will start by trying to decide how to configure the effort. This will include the authority to make decisions via email. Passed unanimously

Volunteers to serve on the committee:

Jim Erckmann
 Chris Konrad
 Jerry Franklin
 Dave Beauchamp
 Steve Ralph
 Richard Bigley
 Cyndy Holtz

Need to be collaborative with staff. Cyndy will pursue recruiting staff support. She will send out an email and kick it off in January 2013. Will try video conferencing. Phone conferences are difficult. At least some face to face meetings will be useful.

Ecological Thinning Brief Discussion

- Need a good description of what it is, what are the parameters
- Tim Romanski is interested in looking in the field at thinning effectiveness and locations of projects in relation to affected species (spotted owl, marbled murrelet). Cyndy will let OC members know when that field trip & technical working group will convene
- We need more explicit information on the website describing ecological thinning –.
- Suggest a field meeting to discuss thinning for the next semi-annual OC meeting in June 2013

Accretion Flow Study Cost Reallocation – Tom Fox

The accretion flow study was looking at the difference in flow between Landsburg and Renton and what the effect of moving the compliance point from Renton to Landsburg might be. The study was completed for far less money than the budget allocated. They found a difference between that predicted in the HCP and current flows. Seeing decreased inflow everywhere they looked except the gauged flow at Renton. The decrease was seen over the entire year, and within segments of the year, and is quite large (~10%). Reason for decreased inflow is unclear.

The IFC is requesting a reallocation of the remaining money (~\$400,000) to other IFC priorities. Because it's more than \$50,000, they need to consult with the OC. Frank Urabeck previously

suggested a reallocation to sockeye mitigation, but that would be transferring between cost categories, which cannot be done without a significant amendment to the HCP. The IFC has a number of studies already prioritized, e.g., peak flow adaptive management, changes in geomorphology as a result of peak flows; additional scour monitoring (recently raised scour limit – needs verification). These data will support decisions for sockeye.

The OC agreed reallocation of the funds to other IFC priorities makes sense and that IFC should make the decisions on how the reallocation will be done. The discussion constituted the required consultation. No motion required.

Invasive Species Staff Presentations

Invasive Species Program Update - Sally Nickelson

- 2012 review of broad Program areas
 - No invasive aquatic animals found
 - Protection Section inspects all boats that go into reservoir
 - No major forest pest/pathogen outbreak
 - Main focus still invasive terrestrial plants and milfoil
- 9 species legally required
 - Policeman's helmet & Dalmation Toadflax likely eradicated
 - Spotted Knapweed – largely under control
 - Sulfur Cinquefoil – newly found and treated while small = Early Detection/Rapid Response
 - 4 hawkweed species – gaining on some, still struggling on others
 - Tansy ragwort – controlling since 2002, number decreased from >23,000 in 2005 to 6,500 in 2012. Graph demonstrates the importance of accurate data collection – figure out what's working.
- 2 species high ecological risk (knotweed, milfoil)
 - Milfoil – first year of no detection
 - Controlling since 2005
- 8 species – high ecological risk, limited distribution
 - Old mans' beard, white water lily, yellow flag iris likely eradicated
 - Butterfly bush mostly eradicated
 - Ivy – eradicated in several locations, controlled in others
 - Yellow archangel – a challenge due to large infestation on neighboring property – trying to stop invasion into our forests
 - Black locust – one site - start control in 2012
- Knotweed
 - Herbicide ordinance 2010 – 2012
 - 3 treatments 7.72 ac
 - 2 treatments 7.86 ac
 - 1 treatment 0.28 ac
 - No water quality effects
 - Need 5 to 6 herbicide treatments to get 98-99% control
 - Will pursue another 3-year ordinance for 2013 – 2015

Knotweed Control on Lower Cedar River – Cyndy Holtz

- Stewardship in Action
 - Partnership SPU, King County, Forterra, Friends of Cedar

- Community, Collaboration, Restoration
- Grant funding
- Landsburg to Renton city limits
- Treatment started in 2008
- Problem spread over many landowners
 - Need unified approach
 - Improved trust & landowner participation
 - Outreach & Education
- Knotweed removal and replanting
- Herbicide treatment
 - Requires at least 3 treatments, likely more
- Have treated along 97% of the 16 river miles
 - Infestation dropped to 25% of original amount
 - Only 6 landowners refused treatment
 - In 2013 control will likely become legally required within 165 feet of Cedar River
- Next steps
 - Landowner workshops
 - More replanting with native species
 - Continue volunteer events
 - Starting more work on other invasive species (ivy, blackberry)
 - Preparing more grants

Talking Points on Forest Restoration & Climate Change – Amy LaBarge

For HCP Oversight Committee Meeting, 12/12/12

CURRENT EFFORTS

- Forest Health Monitoring & Collaboration
 - a. Tracking Forest Health Surveys – annual review of aerial survey findings and collaboration as needed;
 - b. Considering submittal of a Forest Health “Evaluation Monitoring” project proposal to investigate *Armillaria* root disease in collaboration with WA DNR.
- Forest Habitat Monitoring – tracking change over time
 - a. Continuing Permanent plot Sampling – of those plots installed in 2003-2005, we are currently sampling 75% of upland plots and 54% of riparian plots:
 - i. Tracking changes in overstory trees (growth and mortality) and understory vegetation (species composition and cover).
- Incorporating ideas of “managing for resilience” into thinning and planting programs
 - a. Added merit to maintaining individual tree vigor and forest health by thinning – increase resistance to disturbance (insects, diseases, fire, wind, flooding);
 - b. Added merit to increasing diversity of tree species by thinning and planting – increase resilience to disturbance (bouncing back to recover essential ecosystem functions, such as water cycle regulation, habitat provision, carbon sequestration, nutrient cycling);
 - c. Investigating question of forest recovery/transition after disturbance by examining planting, survival, growth and in the long term, reproductive potential of different tree species and seed sources (Resilience Planting Trial);
 - d. Considering question of convergence/overlap of objectives - managing for late-seral habitat and/versus resilience (points to need for vulnerability assessment).
- Collaboration
 - a. USDA National Forest Service and USDI National Park Service North Cascadia Adaptation Partnership – waiting for write up to review;
 - b. USDA Forest Service PNW Research Station - seed germination study;
 - c. University of Washington forest cover and snow research

FUTURE NEEDS

- Conduct a vulnerability assessment of potentially threatened ecological resources and resulting ecosystem functions/services; identify thresholds or triggers that might necessitate active climate adaptation response.
- Conduct Fire Risk Management Strategy – describe potential threats from wildfire ignition and spread, detail prevention and suppression efforts currently taken and potentially needed to reduce risk.
- Continue monitoring, collaborating, and incorporating current knowledge into restoration programs.

DRAFT - Talking Points on Fish, Wildlife, and Climate Change (Dwayne Paige)

For HCP Oversight Committee Meeting, 12/12/12

ASSUMPTIONS

- Climate change model projections somewhat variable; temperature more consistent than precipitation;
- Expected 2-4 °C ambient temperature increase over several decades; hotter summers;
- Relatively small changes in annual precipitation; however, wetter falls, winters, springs;
- Wetter falls, winters, and springs w/warmer summers (drier) >> impacts on terrestrial vegetation community distribution and species composition >>> impact terrestrial species (timing of breeding, nesting, change in timing of food availability, etc);
- Wetter falls, winters, and springs w/warmer summers >> changes to stream flow regimes and wetland hydrology >>>> aquatic habitat/species impacts (increased scour in spring, loss of connectivity in streams, changes in timing of wetland drying); some prediction of 40% species loss (local populations, other ?);
- Forested landscape, stream network, reservoir, and water supply system are “intricately” connected and inter-dependant;

STATUS OF HCP ACTIVITIES

- Avian, Terrestrial, and Aquatic Species - Baselines
 - a. Native forest (old growth) protection; adjacent restoration thinning
 - b. Spotted owl – status; barred owl
 - c. Marbled murrelet – status; future surveys; experimental nesting habitat
 - d. Amphibians – status; habitat protection; general mapping
- Fisheries - Baselines – tracking change over time
 - a. Bull Trout - Chester Morse Lake;/Masonry Pool; behavior, lake/Pool, differential “habitat” use, depth, temperature; temperature modeling;
 - b. Pygmy Whitefish/Rainbow Trout – Chester Morse Lake; behavior, food web, temperature modeling;
 - c. Bull Trout – Cedar/Rex and tributary streams; distribution, “core” spawning habitat;
 - d. Pygmy Whitefish - Cedar/Rex and tributary streams; distribution, “core” spawning habitat;
 - e. Bull Trout/Pygmy Whitefish – timing of and distribution of spawning population
 - f. Bull Trout/Rainbow Trout – summer distribution of juveniles in stream network upstream of Chester Morse Lake; stream occupancy;
 - g. Temperature monitoring – Chester Morse Lake; bull trout spawning/rearing streams; USGS
 - h. Bull trout – reduced monitoring of acoustically tagged fish relative to pump plant project development (USFW/WDFW)

HCP WEB SITE – reports, maps, publications, links

VULNERABILITIES – Aquatic and Terrestrial

- a. “Ecological Amplitude” – species range of tolerance to environmental conditions; specific temperature “triggers” effects on seasonal behavior timing and reproduction;
- b. Chester Morse Lake – water supply; current operational scenarios; “worst case” modeling;
- c. Tributaries – unregulated flows; fall spawning - winter/spring rearing (especially pygmy whitefish);

- d. Tributaries – summer low flows; isolation; access to spawning habitat well upstream of reservoir influence (i.e., inundation influence);
- e. Forested landscape future conditions and change

COLLABORATION

- a. USFWS and WDFW
- b. NOAA fisheries and SPU Water Management – anadromous species (lower river)
- c. UW students and programs – amphibians; wetlands, invertebrates

NEEDS

- Vulnerability and fire risk assessment; focus on landscape scale impacts
- Continued (baseline) temperature monitoring – Chester Morse Lake and selected tributary streams (fisheries significance)
- Revisiting monitoring questions – after vulnerability assessment conducted and periodically, especially if/when threshold landscape vegetation changes/trends detected either regionally or locally;
- Analysis of potential benefits for spotted owl and marbled murrelet under possible refocus of ecological/restoration thinning activities;
- Continue marbled murrelet experimental activities under HCP, evaluating potential for incorporation with ecological thinning activities;
- Long-term monitoring of bull trout population; spawning surveys;

DRAFT Talking Points on Aquatic & Riparian Restoration, Road Management & Climate Change – Dave Beedle

CURRENT EFFORTS

- Development of Classification systems – understanding natural processes
 - a. Stream system divided into GMUs (Geomorphic Map Units)
 - b. Wetland system divided into Hydrogeomorphic (HGM) Classes
 - c. Riparian system divided into Geomorphic setting and cover type
 - d. Roads divided into use classes
- Aquatic/Riparian/Road Monitoring – tracking change over time
 - a. Long-term Aquatic Monitoring
 - b. Permanent plot sampling –riparian plots
 - c. Road inventory
 - i. WARSEM sediment modeling
 - d. Monitor annual peak flows
- Aquatic/Riparian/Road Restoration
 - a. Inventory Reach/Site
 - i. Level 3 USFS stream inventory
 - ii. Vegetation plot
 - b. Determine channel stability
 - i. Qualitative
 - ii. Quantitative
 - c. Extensive air photo analysis
 - d. Annual culvert cleaning and inventory
 - e. Roads - restore natural hydrologic pathways
 - f. Design crossing with conservative estimates of volume and debris loading
- Collaboration
 - a. USDA National Forest Service and USDI National Park Service North Cascadia Adaptation Partnership
 - b. Northwest Forest Plan Interagency Regional Monitoring Program
 - c. Baker-Snoqualmie Stream Inventories

RIVER AND RESERVOIR MANAGEMENT – Tom Fox

Climate change models

- We have used UW data to assess effects on Firm Yield
- We are partners with research to produce new forecasts and climate altered hydrology forecasts
- While these are useful, much can be done by making simple assumptions
- Assume that current thinking forecasts roughly same precipitation, but with warmer temperatures, expect more rain and less snow
- Cedar – Tolt System relies on storage of water on hills as snow as well as liquid behind the dams
- The Cedar and Tolt Reservoirs are too small to contain all of the precip as liquid and still meet all of our current management objectives if that precip falls in roughly the same seasonal distribution:
 - Water supply for people
 - Instream flows
 - Flood management objectives
 - Hydropower production
- This seems to set out two paths (at least two, maybe many)

More near-term paths

Modeling and Analysis

- Continue to seek the best forecast models that attempt to describe the future precipitation volumes, patterns and regional temperatures.
- Use those to forecast potential future hydrology
- Test these hydrology scenarios in existing models to evaluate operations
- Consider alternative operations and new infrastructure

Monitoring

- Identify monitoring that should either continue or start now that should be tracked as indicators of change
- Identify the associated metrics that we should or could use as indicators of change
- Is climate change some sort of gradual process that incrementally affects our systems, or
- is it a series of wide ranging events/perturbations/anomalies that when averaged, reviewed over time represent the new historical hydrology that is climate change
- Does it matter

Possible monitoring and metrics

- Annual total SWE
- Total (average) on 4/1, 5/1 and 6/1
- Average day of Peak SWE and Average day of last value
- Total annual runoff
- Average runoff 4/1 to 10/1
- Average Water Temp at Cedar Falls, Landsburg, Canyon Cr, Taylor Cr
- Average flow at Taylor Cr

Some suggestions for additional monitoring

- Pan evaporation at CML and Lake Youngs
- Soil moisture at CML watershed
- Temperature array at MP and CML
- Others?