

Los Angeles River Instream Flow Criteria: Technical Study
Technical Advisory Committee Meeting #2 – May 15, 2019

Meeting Objectives:

- Discuss priority species and biological modeling approach
- Provide an overview of hydrologic model set up
- Discuss water quality modeling scope and data needs

Participants

In-person:

- Doug McPherson
- Anthony Narcessian
- Edward Belden
- Geremew Amenu
- Kelly Schmoker
- Manual Aquilar
- Jenny Newman
- Katherine Pease
- Andy Collison
- Derek Booth
- Jonathan Bishop
- Wendy Katagi
- Stephen Opot

Project Team:
• Eric Stein
• Kris Taniguchi-Quan
• Jenny Taylor
• Liesl Tiefenthaler
• Terri Hogue
• Colin Bell
• Jordy Wolfand
• Lori Webber
• Tatyana Isupov

Phone:

- Melanie Tory
- TJ Moon
- Abraham Razon
- Joe Decruyenaere
- Nathan Holste
- Patrizia Hall
- rvill3 (Unknown)
- scole (Unknown)
- arthur (Unknown)
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- GD (Unknown)
- Katie Irving
- sean (Unknown)
- Steve Nikaido
- WSAUNDER (Unknown)
- ysanchez (Unknown)
- Christine Medak

- Dian Tanuwidjaja
- Ethan (Unknown)
- Mark Gold
- Michael (Unknown)
- Richard Ruyle

Action Items:

- Further define our list of key habitats
- Associate list with species supported by each key habitat
- Pick representative species based on ability to model
- Provide rationale for selection
- Jordy to compile key WQ data, also get appropriate timeseries and temperature data from the dams/WRP
- Jordy to send out a list of the WQ data to the group to ID if she is missing anything. Goal of obtaining all the WQ data by end of summer.
 - Any changes to the discretization should be done within the next month or so
- Eric and Lori to look at schedule and figure out potential timing for joint TAC/SWG meeting
- Identify key project milestones for in person TAC meetings
 - 2-3 key points for in person meeting: scenario development, translation between hydrology and biology, translation of the results
- Send link to the google drive and website to all

Biology Discussion:

- Presented preliminary species and habitat mapping and biological data sources
 - Mapping was used to understand which species were/are present and where. Goes back to the 1980s. Understand where hotspots of species observations occur and locations of key habitat areas; this information was used to discretize the hydrologic model and ensure that analysis nodes match with biological data. Each point may represent one or many observations that were observed at same location.
 - Focus of species mapping along the mainstem of the river because that is where the key analysis reaches are located: reaches that may have direct impact from changes in water reuse from the WRPs.
 - Kelly: need to define specific vegetation alliances within the broader habitat categories
- Discussed need to identify key/focal habitats or species for analysis of flow effects. This will be how we determine potential effects of altered WRP discharge on beneficial uses

Selection Criteria Goals:

- Represent major habitats in the river
- Represent a diversity of species
- Mix of sensitive and more common
- Life history traits fairly well understood
- Dependent on aquatic habitats for key life history stages
- Sensitive to changes in flow, temperature, hydraulics
- Present or potentially present in study area

- Multiple life history stages
- Seasonal flow needs

Suggestions:

- Consider guilds of species with similar flow needs and the range of conditions
- Important to determine the specificity of the vegetation habitats, want to make sure that this level matches with CDFW. Examples:
 - Rosa CA Brio patches: S3
 - Veg alliances: gw or shallow surface dependent
- Potential focal species were suggested:
 - Pacific lamprey, steelhead, 1 invasive?
 - Arrundo could be a possibility but they are insensitive to changes in flow, that's why they are invasive. May not be telling
 - Warm water perennial flow species should be included as a representative "invasive" spp
 - Species to avoid: mosquitos
 - Bats
- Pick key habitats and flow requirements for those

DECISION

The group agreed to focus on the following general habitat types as representative habitats of the river that could be affected by flow alterations:

1. Coldwater fish habitat – represented by O Mykiss or Santa Ana Sucker
2. Riparian habitat – need to define specific alliances (e.g. cottonwood alliance)
3. Freshwater marsh habitat – need to define specific alliances
4. Wading shorebird habitat
5. Warmwater, perennial flow habitat – as a surrogate for invasive spp habitat
 - a. e.g. largemouth bass

In addition, we will use the existing flow criteria developed for benthic invertebrates and algae

Action Items

- Further define our list of key habitats
- Associate list with species supported by each key habitat
- Pick representative species based on ability to model
- Provide rationale for selection

DECISION

We discussed the tradeoffs of statistical vs. mechanistic modeling approaches. Based on the tradeoffs presented, the TAC recommended that we focus on mechanistic modeling to allow for better consideration of interactions between multiple variables. The underlying rules of the mechanistic model can be developed through a combination of existing empirical relationships and expert input from the TAC

Hydrology Discussion:

Presented the overall water quantity modeling approach: Coupled hydrology (EPA SWMM), hydraulics (HEC-RAS), groundwater (MODFLOW from LA River coupled groundwater-surface water study), tidal hydrodynamics (HEC-RAS informed by WRAP), water quality

- Question: Does anyone have experience coupling model domains in LA (e.g., hydraulics and hydrology)?
 - TJ:
 - WMS --> coupled hydrology and hydraulic models. HEC-RAS: LAR and Tujunga
 - WMMS LSPC --> hydrologic only
 - Important to find the Army Corps dams data at Hanson and Sepulveda. That was missing piece in previous work
 - Are updating models with new LiDAR data, which was provided to technical team
 - Provided technical team with HEC-RAS model for Tujunga and LA River
- Question: Estimates of groundwater upwelling in Glendale Narrows?
 - Andy: Historic water balance for upwelling in the Glendale Narrows, mass balance based on the recent data. Looked at gains between Burbank channel and Tujunga in August over the past 20 or more years. Observed flow upstream and downstream of area. Weren't looking into ET, so that's the missing part

Presented the hydrology and hydraulics modeling domain

- Jon Bishop: add additional cross sections in reaches where we have dense species observation data
- Add label for Hansen dam on study area map
- Hansen dam and Sepulveda dam should be included in the model
- Discussion on the spatial and temporal scales from the hydrologic/hydraulic models.
 - Hourly time step, can be aggregated to daily based on the needs of the eco-hydrologic model needs
 - Andy: There is a diurnal signal from the WRP. Consider getting higher temporal data from the WRPs to capture that. Glendale has that data available, check into Burbank.
 - Suggestion for modeling the spreading grounds: Make sure to create a node at the spreading grounds, set a percolation rate, once it overtops a certain level, then put overflow into the channel.
 - Percolation rates available in WMMS model
- May be able to lump subcatchments in upper reaches where management actions are unlikely, focus on higher resolution in downstream catchments/reporting reaches
- Imported water is gaged and recorded
- Need to verify low-flow channel geometry

Discussed the water quality modeling scope and data needs

- Options: SWMM coupled with HEC-RAS and iTree Cool River for water temperature (new post-doc will build this model)
- Parameters:
 - Temperature
 - Metals
 - TSS
 - Specific conductance

- *Contaminants of emerging concern (CECs)?*
- *DOC?*
- Note: Bacteria and nutrients not included. Whole additional effort because the biogeochemical and other processes would require a larger effort than the timeframe that this project allows. Could potentially model nutrients similarly to metals, but would require increase in scope/budget
- Water temperature importance:
 - Andy: in Santa Clara watershed, flow temperature was found to be one of the most important variables in terms of habitat suitability. It's key to get the water temperature data from the discharge plants
 - Potential management scenario suggestion: controlling the water temperature from the plants. Is this a feasible scenario, need input. Next TAC and SWG meetings will likely discuss management scenarios.
 - Sabrina: would the temperature from the treatment plant be a significant input versus solar radiation?
 - Andy: temperature differences in the Glendale Narrows due to potential upwelling of cooler water and the extra shading
 - Contact the LA Regional Board for mass emissions data from the WRPs

Action Items

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- Jordy to send out a list of the WQ data to the group to ID if she is missing anything. Goal of obtaining all the WQ data by end of summer.
 - Any changes to the discretization should be done within the next month or so

Discussed next steps and future meetings:

- The next TAC meeting scheduled to be late August, early September. Next SWG meeting in person scheduled for Friday October 25th or 18th.
- Should the next TAC meeting be in person or web-based? May consider doing a joint TAC/SWG meeting for management scenario development

DECISION

Group identified key project milestones for in person TAC meetings:

- Scenario development, translation between hydrology and biology, translation of the results

Action Items

- Eric and Lori to look at schedule and figure out potential timing for joint TAC/SWG meeting
- Send link to the google drive and project website to all

Next TAC Meeting topics:

- Flow management scenarios
- Life history discussion
- Modeling discussion