THURSTON COUNTY
WASHINGTON
SINCE 1852

Thurston County
Citizen Advisory Boards/Commissions/Committees
Application

Appointment will require regular meeting attendance that is usually held monthly and in the evening. You may attach a resume or other relevant information if desired. If you are not chosen at this time, would you like us to keep your application on file for future appointments? Yes

Return completed form to:

bowmarl@co.thurston.wa.us or
Thurston County Commissioners' Office
2000 Lakeridge Drive SW, ✓
Building #1, Room #269 Olympia,
✓WA 98502-6045

Name: David M. Hartley

Mailing Address: [redacted]
Address

Olympia
City

WA
State

Zip Code

Phone Number: Home: [redacted]

E-Mail Address: [redacted]

Occupation: Civil Engineering Hydrologist

Commissioner District #: 1

How many hours are you willing to commit? 8 hr/mo, flexible

Which Advisory Board/Commission/Committee interests you? **Storm and Surface Water**

Briefly describe why you would like to serve. I am a semi-retired civil engineer who has worked on flooding, aquatic habitat, and water quality problems for over 30 years, both as a county surface water hydrologist, and as a water resources consultant. I would like to utilize my knowledge and experience with stormwater engineering, policy, and public outreach to support the County's efforts to manage stormwater and increase public awareness on the role of surface and stormwater management in maintaining a high-quality environment that benefits everyone.

What community organizations do you currently volunteer with or have you volunteered with in the past?
I am currently a member of the Boston Harbor Utility Advisory Committee which focuses on our neighborhood water supply and sewer systems that are operated by Thurston County Public Works.

Describe your qualifications and skills that would be of benefit. My qualifications include formulation of stormwater policies and regulations in support of the King County Surface Water Design Manual, Ecology Manual for Western Washington, and WSDOT Highway Runoff Manual, planning stormwater facilities for both flow control and water quality treatment, analysis of land development impacts on flooding, stream flow regime, and water quality, hydrologic modeling of storm and surface water systems, presenting engineering concepts and plans as well as scientific study results to stake holder groups. Please see attached resume for more information.

List your educational background and area of study. I hold a B.S., M.S. and PhD degrees in Civil Engineering Hydraulics. My areas of study were the role of vegetation in slowing surface water flow and improving water quality, quantification of the impact of rainfall on soil erosion, and application of computer modeling to predicting runoff and sediment load.

Signature: David Hartley **Date:** 5/7/21

(Attach additional sheets if needed)

DAVID M. HARTLEY, Ph.D., P.E.

Surface Water Hydrologist

Education

Ph.D., Hydraulic Engineering, Colorado State University

M.S., Hydraulic Engineering, Colorado State University

B.S., Civil Engineering, University of Michigan

License/Affiliations

Registered Professional Engineer, WA

Years Experience

35

Areas of Expertise

Wildland, rural, urban, and mixed land use hydrology

Instream flows and ecohydrology

Statistical hydrology

Watershed hydrology and water quality modeling

Stormwater modeling

Hydrologic impacts of climate change

Floodplain hydraulics and hydrology

PMP and PMF analysis

Dr. David Hartley has over 35 years of documented research and applied experience in modeling of watershed processes including hydrology, hydraulics, and soil erosion. He joined Northwest Hydraulic Consultants (NHC) in 2002 and since that time has managed and conducted projects for both public and private sector clients related to stormwater hydraulics and hydrology, flood control, forest hydrology, stream hydro-ecology, and floodplain management. He is a nationally and internationally recognized expert in the field of surface erosion and hydrologic modeling and has direct experience with such models as HSPF, HEC-HMS, HEC-RAS, and SWMM. Prior to joining NHC, David was the lead watershed hydrologist of the King County, WA, Department of Natural Resources where he guided the County's hydrology and watershed modeling program. Prior to his tenure with King County, David was a Research Hydraulic Engineer with the USDA, Agricultural Research Service (ARS) where he conducted laboratory, field, and computer simulation studies of hydrology, soil erosion, and sediment transport. David has authored numerous journal and conference papers on the subjects of hydrologic processes, modeling, and human influences on streams.

Selected Project Experience

Little Bear Creek Basin Plan, Snohomish County SWM, Snohomish County, WA. Consultant team lead on investigation and selection of hydrologic metrics to be used in development of BMP strategies. Performed regression and correlation analysis of multiple hydrologic metrics reported by DeGasperi et al (2009) with B-IBI data. Formulated and tested alternative metrics associated with sediment disturbance. Compared Little Bear correlations with those from WRIA 8 basins. Assisted Snohomish County in formulating metric-based equations to achieve predicted B-IBI results based on HPC, HPR, and RBI. Participated in multi-agency meetings and public workshops aimed at vetting technical approaches and engaging basin stakeholders in the planning process.

False Bay Watershed Hydrologic and Habitat Assessment, San Juan Conservation District, San Juan Island, WA. Performed an analysis of water management alternatives based on hydrologic modeling of the False Bay Watershed. Developed a continuous, hourly HSPF model accounting for water supply and withdrawals, basin land use, soils, climate, hydrography. Evaluated potential to use water storage and release to support habitat for three potential salmon species. Worked with project fish biologist to identify depth and velocity criteria and applied hydraulic analysis with simulated flow data to determine feasibility of supporting salmon life stages. Worked with project multi-agency advisory group to vet methods and scenarios. Presented results to stakeholder meetings.

Tosh Creek Stream Watershed Restoration Plan, City of Redmond, Redmond, WA. Provided scientific leadership and direction for development of a watershed restoration plan including field-based assessment of geomorphic characteristics, riparian cover, and sediment sources; GIS-based and field-based assessment of existing stormwater infrastructure and potential stormwater retrofit sites; and hydrologic modeling and metric selection to establish the relationship of existing flow regime compared to pristine, historic conditions. Led the development, evaluation, and prioritization of potential stormwater retrofit, instream stabilization, and habitat improvement projects. Contributed key technical sections in the City's Tosh Creek Watershed Restoration Plan. Co-wrote pre-design reports for prioritized stormwater

retrofit projects, and contributed to the City's successful grant application resulting in a $4,500,000 grant for design and construction of the plan's initial stormwater retrofit project.

Hydrologic Modeling in Support of Watershed Based Land Use Planning, Department of Planning, Thurston County, WA. Managed and provided scientific leadership for an EPA-funded project to develop HSPF flow and water quality models in three pilot basins within Thurston County for the purpose of informing land use planning and management decisions. Developed and applied criteria to select three pilot basins, guided model development and application. Interpreted land use planning implications of model results for flow and water quality. Convened a Science Advisory Team to provide independent technical review of study methods and results. Provided scientific support to the County at both public and agency stakeholder meetings.

Puget Sound Characterization-Phase II, Department of Ecology, WA. Under subcontract to Stillwater Sciences, joined an interdisciplinary team as water quality modeling experts to evaluate, select, and implement a model or procedure to characterize relative water quality degradation resulting from land use and management impact on nutrient, metals, suspended sediment, and pathogen loading to all Puget Sound Basin waterways. Led the team in the review of objectives, modeling approaches, available data, and existing software. Convened a workshop of regional water quality experts to assign relative EMC loading factors to land use categories pursuant to rating all AUs (geographic analysis units) using NOAA's NSPECT model.

Juanita Creek Basin Plan, Water and Land Resources Division, King County, WA. Performed and directed sediment transport, channel hydraulics, physical habitat, and geomorphic assessment, as well as conceptual design of stream restoration alternatives for Juanita Creek in support of King County's Juanita Creek basin study. Provided independent technical review of the County's report - *Stormwater Retrofit Analysis and Recommendations for Juanita Creek Basin in the Lake Washington Watershed.*

Totem Lake Stormwater Retrofit Project, City of Kirkland, Kirkland, WA. Provided strategic guidance on approaches to identifying stormwater retrofit projects, evaluating hydroecological benefits of retrofits, and formulating alternative flow control standards suitable for a small lake subbasin of the Juanita Creek basin.

Sullivan Creek Habitat and Geomorphic Assessment Project, Seattle City Light, Metaline Falls, WA. Coordinated staff training, field data collection, data processing, summarization, interpretation, reporting, and conference presentations associated with a detailed habitat and geomorphic survey along 29 KM of Sullivan Creek, the largest tributary to Boundary Reservoir. Led a project team in the analysis of bull trout limiting factors, specification and siting of protection, mitigation, and enhancement (PM&E) measures. Performed QA/QC review of all project deliverables and co-authored a conference presentation on the project with the client and other members of the technical team.

DuPont Gate Stormwater Basin and Retrofit Study, Department of Public Works, Joint Base Lewis-McChord, WA. Led the modification and calibration of an existing, coarse HSPF model to represent a highly urbanized Basin 2 in far greater detail. Applied the model to assess the performance of an existing stormwater treatment facility consisting of a pump station, detention/infiltration pond, and coalescing plate oil water separator facility, both with respect to treatment of oils and grease and with respect to the latest Washington State standards for basic water quality treatment.

Hydrologic Benefits of Low Impact Development and On-site Retention, Central Coast Water Board, San Luis Obispo, CA. Provided hydrologic science, modeling, and analysis to support development of regional stormwater requirements for on-site runoff retention. Analyzed and reported the hydrologic benefits of on-site, infiltration-based BMPs such as bioretention, and conventional detention facilities in the Central Coast region. Collaborated with Board staff to develop case studies and investigated hydromodification performance using continuous HSPF hydrologic modeling, and analysis of flood frequency, high flow duration, base flow, and water balance components.

Woodard Creek Stormwater Retrofit Study, Department of Resource Stewardship, Thurston County, WA. Reviewed basin conditions and prioritized stormwater problems. Developed, documented, and implemented a GIS-based desktop analysis to identify the most promising stormwater retrofit sites at parcel scale. Adapted an existing HSPF hydrology and water quality model as a tool to compare pollution reduction effectiveness of candidate stormwater retrofit projects. Provided support in the form of presentations and graphical materials at stakeholder and public meetings.