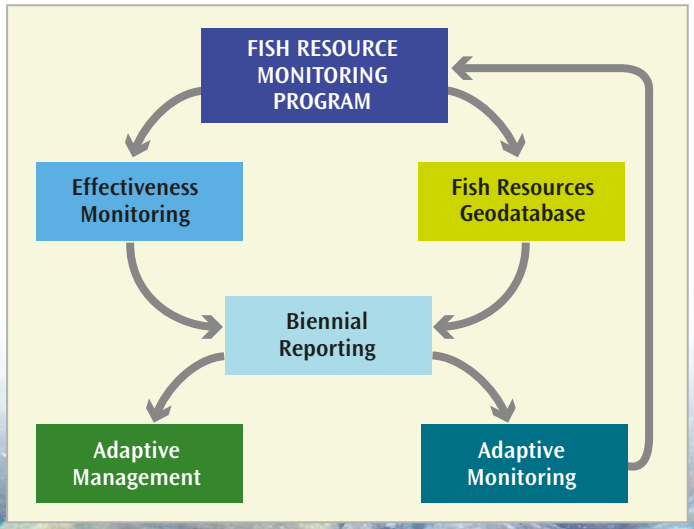
Science & Technical Support Section's
SciFYI
King County
Department of Natural Resources and Parks
Water and Land Resources Division
A science section digest of current environmental issues in King County
October 2017

New Fish Resource Monitoring Program

by Jim Bower

King County is ground zero for managing both rapid urbanization and highly valued fish resources. The County and numerous other partners have spent millions of dollars on fish conservation and fish habitat projects, as well as floodplain restoration, land protection, stormwater controls, land use regulations, and other salmon recovery efforts. Do you ever wonder if all the steps we take to conserve the County's environment and fish resources are making a difference? Are we on the right track?

King County's Science and Technical Support Section has initiated a Fish Resources Monitoring Program to track and more importantly, drive improvement of the overall effectiveness of ongoing strategies to conserve our fish resources. The program will implement a suite of methodologies to determine if our strategies are producing an overall positive, cumulative effect on fish populations and fish habitat. Furthermore, the program will evaluate the return on County (and other partner) investments in fish resources; where and how the County can maximize the effectiveness of future investments in fish resources; and whether or not changes should be made to protection, mitigation and restoration efforts.



A technical team from across King County's Water and Land Resources Division (WLRD) began work in early 2017 to develop an initial, multi-prong approach to address the program goals and questions. The team started by considering fundamental analysis options, such as project-level, status and trend, and intensively monitored watershed assessments. Over time, the program may tackle these challenging goals and questions from different scales and scopes, along with changing priorities. The acquisition of additional status and trends data across major watersheds in King County will also be explored. However, in the near term, the initial approach by the team is likely to involve two separate methods:

1 A meta-analysis of approximately 18 project-level monitoring efforts overseen by the River and Floodplain Management Section and Ecological Restoration and Engineering Services Unit within WLRD. This analysis is expected to utilize "log response ratios," which measure the proportional changes of important ecological variables caused by a range of treatments (Hedges et al 1999). The results of individual monitoring efforts within the meta-analysis will be weighted based on the type of experimental control.

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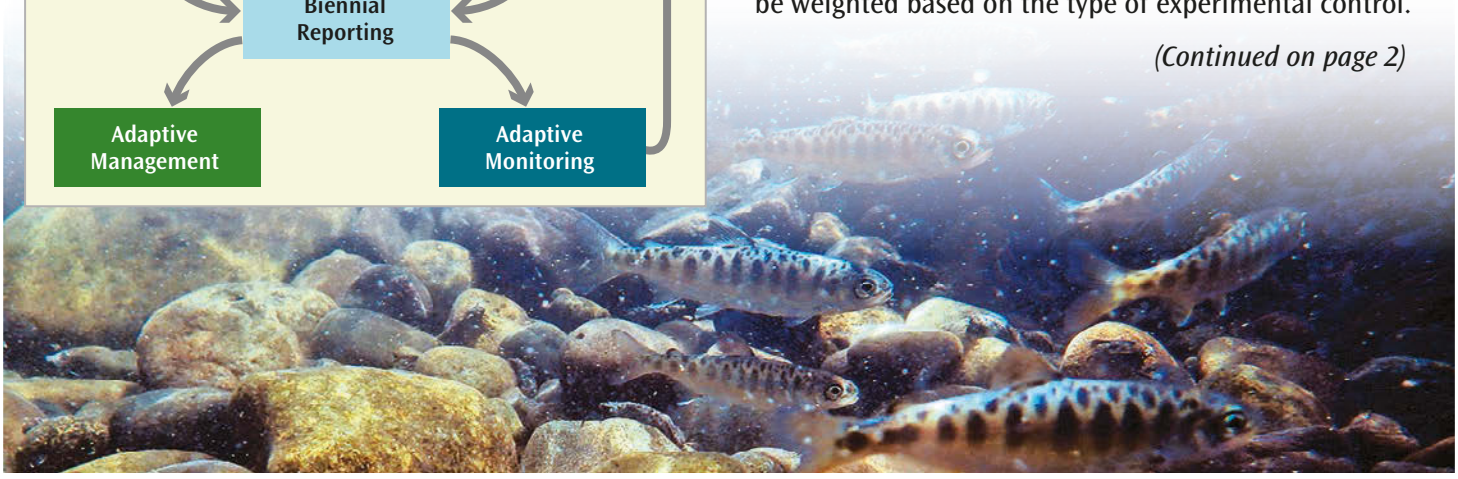

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2 A variation of intensively monitored watersheds by replicating the 2014 study Assessing Land Use Effects and Regulatory Effectiveness on Streams in Rural Watersheds of King County, Washington (Lucchetti et al 2014). This approach will evaluate changes to important fish habitat variables after 10 plus years of implementation of "critical area" regulatory protections. This analysis will also initiate the assessment of fish population biomass, richness, and diversity among the study watersheds.

Both analyses are expected to help describe the performance of current resource management strategies and inform future adaptive management.

A concurrent program task is developing a spatially related fish population and habitat database. Over time, the database will incorporate historic and current fish resource information, including survey data, related reports, and supplemental narratives. This will require coordination with other local and regional data collection efforts, such as those by Tribes, WRIAs, Puget Sound Partnership, and state and federal agencies. The data is anticipated to be associated with high-resolution hydrography and delivered to any desktop or online ArcGIS end-user in their own, customizable GIS environment.

A "Year 1" program status report will be completed in February 2018. Future bi-annual status reports will review ongoing data collection and assessments, describe data gaps, promote new opportunities for adaptive management, and ensure current and relevant resource management questions are still being asked. The periodic status report will also be the primary opportunity to propose future program monitoring and assessment methodologies based on current findings.■

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