



## **Part II**

# **Creeks, Macroinvertebrates, Salmonids**

## PART II CREEKS, MACROINVERTEBRATES

<b>Introduction to Stream Habitat Surveys</b> .....	<b>179</b>
Log of Habitat Surveys	
Summaries of Three Recent Habitat Surveys:	
1. PFC Matrix & Checklist Report by National Riparian Service Team	
2. Upper Tryon Creek Corridor Assessment by Portland Bureau of Environmental Svcs.	
3. Habitat Inventory Assessment of Tryon & Arnold Creeks by Ore. Dept. of Fish and Wildlife	
<b>Properly Functioning Condition Assessment</b> .....National Riparian Service Team.....	<b>186</b>
<b>Reprint: ODFW Habitat Inventory Survey</b> , A. Vaivoda. 2000.....Tryon mainstem and Arnold .....	<b>215</b>
<b>Environmental Baseline Conditions Report &amp; Limiting Factors Analysis for Anadromous Salmonids</b> .....	
Bernard Klatte, Robt. Ellis, PhD.... (Ed. Jon Rhodes).....	<b>226</b>
<b>NMFS PFC Matrix and Checklist</b>	
<b>WCC-Salmonid Habitat Condition Rating Standards for Identifying Limiting Factors</b>	
<b>Macroinvertebrate Assessment Report</b> ...Bernard Klatte; Robert Ellis, PhD (Ed. Jon Rhodes).....	<b>24</b>
Data Analysis and Matrix.....Robert Wisseman, Aquatic Biology Associates, Inc.	
Reach Map and Monitoring Sites Photo Documentation	
Recommendations	
Literature Cited	

## PART III OTHER SURVEY REPRINTS: FISH, MACROINVERTEBRATES

<b>Reprint: Bioassessment of Urban Streams, Portland, OR (Johnson and Tryon Creeks)</b> .....	<b>319</b>
Yangdong Pan, PhD, Portland State University	
<b>Reprints: Misc. Fish Population Surveys</b> .....	<b>337</b>
<i>StreamNet Library Website References</i>	
<i>City of Portland ESA Team Electrofishing Report 2001</i>	
<i>Metro Project Report 1986-87</i>	
<i>ODFW-S.T.E.P. Report 1982</i>	
<i>ODFW S.T.E.P. Electrofishing Reference Data Sheets 1995-97</i> (to be added)	
<b>Reprint: Metro Regional Macroinvertebrate Survey</b> .....	<b>345</b>

## ELECTRONIC APPENDIX (in process)

Appendix I.....Metro: <i>Tryon Creek Watershed Atlas</i>	
Appendix 2.....Misc. Student Research Reports	
Appendix 3.....PWA <i>Data Review</i> ; NRMG <i>Hydrogeologic Report</i>	
Appendix 4.....Misc. Oregon Dept. of Fish and Wildlife Surveys	
Appendix 5.....City of Portland Bureau of Environmental Services (BES): <i>Upper Tryon Creek Corridor Assessment</i>	
Appendix 6.....Available Municipal Fill/Removal Permit Files, Selected Correspondence with City, Federal Agencies	
Appendix 7.....Selected News Articles	
Appendix 8.....Portland BES Stormwater/Watershed Management Plans	
Appendix 9.....Natural Resources Conservation Service-Funded Instream Projects: Available Files, References, Corresp.	
Appendix 10.....Oregon Division of State Lands Municipal Fill/Removal Permits, Correspondence	
Appendix 11.....Tryon Creek Watershed Council Matrix	

Photo: Driveway conflicts with creek.



## Introduction

Part I includes recent studies of stream habitat. Parts II and III contain reports on surveys of fish and macroinvertebrates conducted by a number of different agencies. Besides publishing the results of such surveys, an additional objective of this Assessment was to compare various methods of evaluating the characteristics of the watershed. As noted by consulting hydrologist J. Rhodes in Part I, although the survey methods differed in certain respects, the characterizations of the watershed and final conclusions showed many similarities: "Several methodologies have been used to assess stream and fish habitat conditions in Tryon Creek, including surveys of physical habitat attributes and macroinvertebrates. These surveys consistently indicate that salmonid habitats in Tryon Creek are extensively and intensively degraded in ways that reduce the survival and production of salmonids. The major cause of the degradation appears to be changes in surface water runoff caused by the cumulative effects of urbanization. These results are consistent with available literature on the effects of urbanization on stream channels at the current levels of impervious area existing within the watershed." (J. Rhodes, Report Abstract, 12/6/02)

The first report in Part II -- referred to as the "**PFC Assessment**" (Properly Functioning Condition) -- was performed by the National Riparian Service Team (NRST), assisted by several local consultants and volunteers from WM-SWCD and the Tryon Creek Watershed Council. NRST's PFC protocol originally was developed by the Bureau of Land Management to assess streams in agricultural or rangeland environments, but has begun to be applied in the urban environment as well. The NRST-PFC method employs a "lotic" rating system to evaluate physical dynamics, although in this case the Team took particular note of fish habitat availability.

Following the NRST-PFC assessment in this publication is a report by fisheries biologist, Bernard Klatte. Mr. Klatte obtained guidance from fisheries biologist Jim Turner of the National Marine Fisheries Service (NMFS). NMFS has its own survey methodology, the "**PFC Matrix and Pathways.**" The primary focus of the NMFS' PFC protocol, however, is the condition of Tryon's salmonid habitat. Given that the burden of work for this survey was on Mr. Klatte, the study area was much more limited than that of the NRST group. Mr. Klatte used the same reach areas as those in the ODFW habitat inventory in 2000. Aquatic biologist Jon Rhodes provided editorial assistance on this report.

The third report is a reprint from the Oregon Department of Fish and Wildlife Corvallis Habitat Inventory Program: "**Habitat Inventory Survey Report for Tryon and Arnold Creeks.**" It was commissioned by the City of Portland ESA-Team. One of the most detailed of the physical habitat surveys, it nevertheless only includes the Tryon mainstem from the Willamette River upstream to Marshall Park and the lower section of Arnold Creek. Complete ODFW survey data will be available in an electronic appendix.

A "biological" survey of the main creeks was organized through this Baseline Project. WM-SWCD's **Macroinvertebrate Sampling Workshop and Survey** utilized the same stream "reach" sections as the ODFW survey and Mr. Klatte's PFC assessment. The WM-SWCD Macroinvertebrate Survey included an all-day workshop with trainers from a variety of agencies. The primary trainers were Jeff Adams, an aquatic entomologist with the Xerces Society, Bernard Klatte and Dr. Robert Ellis, consulting fisheries biologists, and Jon Rhodes, consulting aquatic biologist and hydrologist. The samples collected were sent to the Aquatic Biology Associates, Inc. laboratory of Bob Wisseman for analysis. The survey sites and results of the analysis are included in this publication.

To be included later as an electronic appendix to this report is **Portland Bureau of Environmental Services' 1997 Upper Tryon Creek Corridor Assessment**. This lengthy document indicated how the municipal bureau viewed its responsibilities as the designated agency for stormwater management. In addition to the 1997 report will be BES' 2003 *Management Plan* for further urbanization of the Tryon and Fanno Creek watersheds.

**Portland ESA Team's** 2003 report to the National Marine Fisheries Service regarding fish habitat issues (i.e. city policies and practices) will be included in an electronic appendix to this baseline assessment when it becomes available.