

PART V: APPENDIX

Habitat Matrix

Habitat Matrix Introduction

Under the Salmon Recovery Act (passed by the Legislature as House Bill 2496 and later revised by Senate Bill 5595), the Washington Conservation Commission (WCC) is charged with identifying the habitat factors limiting the natural production of salmonids throughout most of the state.

In order to develop a set of standards to rate salmonid habitat conditions, several federal, state and tribal documents that use some type of habitat rating system (MATRIX 1) were reviewed. The goal was to identify appropriate rating standards for as many types of habitat limiting factors as possible, with an emphasis on those that could be applied to readily available data. Based on the review, it was decided to rate habitat conditions into three categories: Good, Fair, and Poor. For habitat factors that had wide agreement on how to rate habitat condition, the accepted standard was used. For habitat factors that had a range of options, one or more of them were used. Where no standard could be found, a default rating standard was developed, with the expectation that it will be modified or replaced as better data becomes available. The result of that exercise is shown in MATRIX 4.

The ratings used in this exercise are shown in the table MATRIX 3. These ratings are not intended to be used as thresholds for regulatory purposes, but as a coarse screen to identify the most significant habitat limiting factors in WRIA 9. For many of the habitat conditions there was not sufficient data available to use a rating standard. In those cases the habitat parameters are given a rating of “Data Gap”. In other situations there was data on habitat parameters where no rating was provided. For these factors, the best professional judgement of knowledgeable technical team members was used to assign appropriate ratings.

It is important to note that these ratings do not include the production potential of the reaches of the mainstem Green River or tributaries. Many of the streams with habitat parameters rated as “Poor” have the potential, if allowed to heal, to successfully meet the needs of naturally produced salmonids. This is particularly true of streams that are located away from the heavily urbanized settings.

Review of Salmonid Habitat Condition Ratings

MATRIX 1: Source documents

Code	Document	Organization
WSP	Wild Salmonid Policy (1997)	Washington Department of Fish and Wildlife and Western Washington Treaty Tribes
PHS	Priority Habitat Management Recommendations: Riparian (1995)	Washington Department of Fish and Wildlife
WSA	Watershed Analysis Manual, v4.0 (1997)	Washington Forest Practices Board
NMFS	Coastal Salmon Conservation: Working Guidance (1996)	National Marine Fisheries Service
Skagit	Skagit Watershed Council Habitat Protection and Restoration Strategy (1998)	Skagit Watershed Council
Hood Canal	Hood Canal/Eastern Strait of Juan de Fuca Summer Chum Habitat Recovery Plan (1999)	Point No Point Treaty Council and Washington Department of Fish and Wildlife

MATRIX 3: Review of salmonid habitat condition ratings

Habitat Factor	Source	Parameter/Unit	Channel Type	Poor	Fair	Good
Fine Sediment	WSP	Fines < 0.85 mm in spawning gravel	All (except where natural values exceed 11%)	-	-	≤11%
	WSA	Fines < 0.85 mm in spawning gravel	All	>17%	12-17%	<12%
	NMFS	Fines < 0.85 mm in spawning gravel	All – Westside	>17%	12-17%	<12%

Habitat Factor	Source	Parameter/Unit	Channel Type	Poor	Fair	Good	
		Fines < 0.85 mm in spawning gravel	All – Eastside	>20%	12-20%	<12%	
	Skagit		All (Westside only)	Use B-IBI			
	Hood Canal	Fines < 0.85 mm in spawning gravel	All (Westside only)	>17%	12-20%	<12%	
Large Woody Debris	WSP/WSA	pieces/channel width	<20 m wide	<1	1-2	2-4	
		key pieces/channel width*	<10 m wide (Westside only)	<0.15	0.15-0.30	>0.30	
		key pieces/channel width*	10-20 m wide (Westside only)	<0.20	0.20-0.50	>0.50	
		* Minimum size to qualify as a key piece:		BFW (m)	Diameter (m)	Length (m)	
				0-5	0.4	8	
				6-10	0.55	10	
				11-15	0.65	18	
			16-20	0.7	24		
	NMFS	pieces/mile >24" dia. and >50' length	All – Westside	Does not meet standard and does not have sufficient recruitment potential from riparian stand	Meets standard, but does not have sufficient recruitment potential from riparian stand	>80 and has sufficient recruitment potential from riparian stand	
		pieces/mile >12" dia. and >35' length	All – Eastside	Does not meet standard and does not have sufficient recruitment potential from riparian stand	Meets standard, but does not have sufficient recruitment potential from riparian stand	>20 and has sufficient recruitment potential from riparian stand	
	Skagit	pieces/m channel length	≤4% gradient, <15 m wide (Westside only)	-	-	>0.4	

Habitat Factor	Source	Parameter/Unit	Channel Type	Poor	Fair	Good
Percent Pool	Hood Canal	pieces/m channel length	≤4% gradient, <15 m wide (Westside only)	<0.2	0.2-0.4	>0.4
	WSP/WSA	% pool, by surface area	<2% gradient, <15 m wide	<40%	40-55%	>55%
		% pool, by surface area	2-5% gradient, <15 m wide	<30%	30-40%	>40%
		% pool, by surface area	>5% gradient, <15 m wide	<20%	20-30%	>30%
	NMFS			-	-	-
	Skagit			-	-	-
	Hood Canal	% pool, by surface area	<15 m	<40%	40-55%	>55%
		% pool, by surface area	>15 m	<35%	35-50%	>50%
Pool Frequency	WSP/WSA	channel widths per pool	<15 m wide	>4	2-4	<2
	NMFS	channel width	pools/mile	does not meet pool frequency standards (left)	meets pool frequency standards (left), but large woody debris recruitment is inadequate to maintain pools over time	meets pool frequency standards (left) and meets large woody debris standards (above)
		5'	184			
		10'	96			
		15'	70			
	20'	56				
	25'	47				
	50'	26				
	75'	23				
	100'	18				
Skagit						
Hood Canal	channel widths per pool	<15 m	<2	2-4	>4	

Habitat Factor	Source	Parameter/Unit	Channel Type	Poor	Fair	Good
Pool Quality	WSP/WSA	Pools/km >1 m deep with good cover and cool water	All	Few deep pools	-	Sufficient deep pools
	NMFS	pools >1 m deep with good cover and cool water	All	No deep pools and inadequate cover or temperature, major reduction of pool volume by fine sediment	Few deep pools or inadequate cover or temperature, moderate reduction of pool volume by fine sediment	Sufficient deep pools
	Skagit			-	-	-
	Hood Canal			-	-	-
Temperature	WSP (Same as State Water Quality Standards)	degrees Celsius	Class AA	-	-	≤16° C
		degrees Celsius	Class A	-	-	≤18° C
		degrees Celsius	Class B	-	-	≤21° C
	WSA	% shade	Class A and AA only	Need sufficient shade to meet water quality standards		
	NMFS	degrees Celsius	All	>15.6° C (spawning) >17.8° C (migration and rearing)	14-15.6° C (spawning) 14-17.8° C (migration and rearing)	10-14° C
	Skagit			-	-	-
	Hood Canal	degrees Celsius		>12° C	-	<12° C
Fish Passage	WSP		All	-	-	Free and unobstructed passage for all wild salmonids, and ≥95% survival for passage through dams and diversions

Habitat Factor	Source	Parameter/Unit	Channel Type	Poor	Fair	Good
	WSA		All	Access blocked by low water, culvert, falls, temperature, etc.	-	No blockages
	NMFS		All	any artificial barriers present do not allow upstream and/or downstream passage at all flows	any artificial barriers present do not allow upstream and/or downstream passage at low flows	any artificial barriers present provide upstream and downstream passage at all flows
	Skagit			-	-	-
	Hood Canal		All			Unobstructed passage
Flow	WSP	% impervious surface	All	>5-10%	-	-
		hydrologic maturity	All	-	-	>60% of standing timber at age 25 or more
	WSA	hydrologic maturity	All	hydrologic modeling exercise focused on rain-on-snow zone		
	NMFS	hydrograph change	All	pronounced changes in peak flow, baseflow and/or flow timing relative to an undisturbed reference watershed	some evidence of altered peak flow, baseflow and/or flow timing relative to an undisturbed reference watershed	watershed hydrograph indicates peak flow, base flow and flow timing are comparable to an undisturbed reference watershed
		drainage network density	All	significant increases in drainage network density due to roads (e.g. 20-25%)	moderate increases in drainage network density due to roads (e.g. 5%)	zero or minimum increases in drainage network density due to roads
	Skagit	% impervious area	Lowland basins	>10%	3-10%	≤3%

Habitat Factor	Source	Parameter/Unit	Channel Type	Poor	Fair	Good
		hydrograph change	Forested mountain basins	2-yr flood magnitude exceeds 5-yr flood magnitude under natural conditions		
		Range of Variability Approach	All	change greater than one standard deviation from annual 7-day minimum flow or of the annual peak flow		
	Hood Canal	% impervious surface		>5%		
		hydrologic maturity		<60% of a watershed in native forest vegetation		
Sediment Supply/Mass Wasting	WSP			-	-	-
	WSA					No increase in mass wasting events over natural levels
	NMFS			-	-	-
	Skagit	m ³ /km ² /yr	All	> 100 or exceeds natural rate		< 100 or does not exceed natural rate
	Hood Canal			-	-	-
Roads	WSP			-	-	-
	WSA			?	?	?
	NMFS	mi/mi ²	All	>3 with many valley bottom roads	2-3 with some valley bottom roads	<2 with no valley bottom roads
	Skagit			-	-	-
	Hood Canal			-	-	-

Habitat Factor	Source	Parameter/Unit	Channel Type	Poor	Fair	Good
Riparian	WSP	buffer width	Type 1-3 and untyped salmonid streams >5' wide			Mature native vegetation. Buffer should be 100-150' or site potential tree height (whichever is greater) measured horizontally out from channel migration zone on each side.
		buffer width	Type 4 and untyped perennial streams <5' wide			100' buffer of mature native vegetation on each side.
		buffer width	Type 5 and all other untyped streams			50' buffer of mature native vegetation on each side
	PHS	buffer width	Type 1&2 or Shorelines of Statewide Significance			250'
		buffer width	Type 3 or other streams 5-20' wide			200'
		buffer width	Type 3 or other streams <5' wide			150'
			Other intermittent streams with low mass wasting potential			150'
Habitat Limiting Factors and Reconnaissance Report Part V			7	<i>Appendix</i>		

Habitat Factor	Source	Parameter/Unit	Channel Type	Poor	Fair	Good																															
		buffer width	Other intermittent streams with high mass wasting potential			225'																															
	WSA	Species, average tree size, and density within 100' of channel	All channels <20% gradient	HSS, HSD, MSS, MSD, CSS, CSD, HMS, HLS	HMD, MMS, CMS, CLS, HLD, MLS	CMD, MMD, MLD, CLD																															
				<table border="1"> <thead> <tr> <th>Column</th> <th>Code</th> <th>Class</th> <th>Species</th> </tr> </thead> <tbody> <tr> <td rowspan="3">1</td> <td>C</td> <td>Conifer</td> <td>≥70% conifer</td> </tr> <tr> <td>H</td> <td>Hardwood</td> <td>≥70% hardwood</td> </tr> <tr> <td>M</td> <td>Mixed</td> <td>all other cases (mixed)</td> </tr> <tr> <td rowspan="3">2</td> <td>S</td> <td>Small</td> <td><u>Average tree size</u> <12 inches dbh</td> </tr> <tr> <td>M</td> <td>Medium</td> <td>12-20 inches dbh</td> </tr> <tr> <td>L</td> <td>Large</td> <td>≥20" dbh</td> </tr> <tr> <td rowspan="2">3</td> <td>S</td> <td>Sparse</td> <td><u>Ground exposed</u> >33% (Western WA) >50% (Eastern WA)</td> </tr> <tr> <td>D</td> <td>Dense</td> <td>≤33% (Western WA) ≤50% (Eastern WA)</td> </tr> </tbody> </table>			Column	Code	Class	Species	1	C	Conifer	≥70% conifer	H	Hardwood	≥70% hardwood	M	Mixed	all other cases (mixed)	2	S	Small	<u>Average tree size</u> <12 inches dbh	M	Medium	12-20 inches dbh	L	Large	≥20" dbh	3	S	Sparse	<u>Ground exposed</u> >33% (Western WA) >50% (Eastern WA)	D	Dense	≤33% (Western WA) ≤50% (Eastern WA)
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	NMFS			?	?	?																															
	Skagit	buffer width	All	<20 m	20-40 m	≥40 m																															
	Hood Canal	vegetation composition	(summer chum)	Deciduous dominated (>70% of the canopy)	Mixed	Conifer dominated (<70% of the canopy)																															
		average stand diameter	(summer chum)	< 12 inches dbh	12-20 inches dbh	>20 inches dbh																															
		stand density	(summer chum)	>80% ground exposure	33-80% ground exposure	<33% ground exposure																															

Habitat Factor	Source	Parameter/Unit	Channel Type	Poor	Fair	Good
		extent	(summer chum)	<66' wide forested buffer	66-132' wide forested buffer	>132' wide forested buffer
		buffer width	annual streams			250' buffer measured horizontally from channel migration zone or 100-yr floodplain (whichever is greater)
		buffer width	seasonal streams			Site potential tree height measured horizontally from ordinary high water mark
Streambank Stability	WSP	% of banks not actively eroding	all			>90% stable
	WSA					
	NMFS	% of banks not actively eroding	all	<80% stable	80-90% stable	>90% stable
	Hood Canal					
	Skagit					
Floodplain	WSP					
	WSA					

Habitat Factor	Source	Parameter/Unit	Channel Type	Poor	Fair	Good
	NMFS		All	severe reduction in hydrologic connectivity between off-channel, wetland, floodplain and riparian areas; wetland extent drastically reduced and riparian vegetation/succession altered significantly	reduced linkage of wetland, floodplains, and riparian areas to main channel; overbank flows are reduced relative to historic frequency, as evidenced by moderate degradation of wetland function, riparian vegetation/succession	off-channel areas are frequently hydrologically linked to main channel; overbank flows occur and maintain wetland functions, riparian vegetation and succession
	Skagit	(in development)		?	?	?
	Hood Canal					

MATRIX 4: Identified habitat conditions that limit natural salmonid production in WRIA 9

Stream Name	WRIA Stream Index Number	Access	Floodplain Conditions	Channel Conditions	LWD	Streambed Sediment	Riparian	Water Quality	Hydrology	Biological Processes
Duwamish – Green RM 0-11	09.0001	G	P	P	P	P	P	F	P	G
Longfellow Ck	09.0359	F	p	p	p	P	p	F	P	na
Unnamed trib.	09.0360	P							P	na
Hamm Creek	09.0002	P	P	P	P	P	P	P	P	na
MF Hamm Ck	09.0002A	P	P	P	P	P	P	P	P	na
SF Hamm Ck	09.0002B	G	P	P	P	P	P	P	P	na
Lost Fork Hamm Ck	09.0002C	G	P	P	P	P	P	P	P	na
Green River RM 11.0 - 31.0	09.0001	G	P	P	P	P	P	F	P	G
Black River	09.0004	F	F	P	P	P	P	P	P	P
Springbrook Ck	09.0005	F	P	P	P	P	P	P	P	P
Hill Creek	09.0012	F	P	P	P	P	P	P	P	na
Unnamed trib.	09.0015	F	P	P	P	P	DG	P	P	na
Garrison Ck.	09.0022	F	DG	DG	DG	DG	DG	DG	P	na
NF Garrison Ck	09.0023	F	DG	DG	DG	DG	DG	DG	P	na
SF Garrison Ck	09.0024	F	DG	DG	DG	DG	DG	DG	P	na
Unnamed trib.	09.0025	F	DG	DG	DG	DG	DG	DG	P	na
Mullen Slough	09.0045	P	P	DG	P	DG	P	P	P	na
Unnamed trib	09.0046	DG	P	DG	P	DG	P	P	P	na
Unnamed trib	09.0047	DG	P	DG	P	DG	P	P	P	na
Unnamed trib	09.0048	DG	P	DG	P	DG	P	P	P	na
Unnamed trib	09.0049	DG	P	DG	P	DG	P	P	P	na
Mill Creek	09.0051	F	DG	DG	P	P	P	P	P	na
Unnamed trib	09.0052	DG	DG	DG	P	DG	DG	P	P	na
Unnamed trib	09.0053	DG	DG	DG	P	DG	DG	P	P	na
Unnamed trib	09.0054	DG	DG	DG	P	DG	DG	P	P	na
Unnamed trib	09.0055	DG	DG	DG	P	DG	DG	P	P	na

G = Good F = Fair P = Poor DG = Data Gap na = not applicable

MATRIX 4: Identified habitat conditions that limit natural salmonid production in WRIA 9 (continued)

Stream Name	WRIA Stream Index Number	Access	Floodplain Conditions	Channel Conditions	LWD	Streambed Sediment	Riparian	Water Quality	Hydrology	Biological Processes
East Hill Tributaries										
Olson Ck.	09.0061	F	DG	DG	P	DG	P	G	DG	na
Unnamed trib.	09.0061 B	DG	DG	DG	P	P	DG	DG	DG	na
Lea Hill Ck.	09.0069	P	DG	DG	DG	P	P	G	P	na
Cobble Ck.	09.0068	P	DG	P	DG	P	P	G	P	na
Unnamed trib.	09.0068 A	P	DG	P	DG	DG	P	G	P	na
Unnamed trib	09.0068 B	P	DG	DG	DG	DG	P	G	P	na
Unnamed trib	09.0068 C	P	DG	DG	DG	DG	P	G	P	na
Unnamed trib	09.0068 D	P	DG	DG	DG	DG	P	G	P	na
Unnamed trib	09.0068 E	P	DG	DG	DG	DG	P	G	P	na
Unnamed trib	09.0068 F	P	DG	DG	DG	DG	P	G	P	na
Unnamed trib	09.0068 G	P	DG	DG	DG	DG	P	G	P	na
Soos Creek Subbasin										
Soos Creek	09.0072	G	DG	F	DG	F	F	G	P	G
Soosette Creek	09.0073	G	DG	F	DG	DG	F	G	P	na
Covington Ck.	09.0083	G	DG	F	DG	F	F	G	P	na
Jenkins Creek	09.0087	G	DG	F	DG	DG	F	G	P	na
Little Soos Ck.	09.0092	G	DG	F	DG	DG	F	G	P	na
Middle Green R. tributaries										
Burns Creek	09.0105	G	G	P	P	F	DG	G	P	na
Crisp Creek	09.0113	P	DG	DG	P	DG	P	G	P	G
O'Grady Creek	09.0107	F	DG	P	P	P	F	G	P	na

G = Good F = Fair P = Poor DG = Data Gap na = not applicable

MATRIX 4: Identified habitat conditions that limit natural salmonid production in WRIA 9 (continued)

Stream Name	Stream Number (WRIA #)	Access	Floodplain Conditions	Channel Conditions	LWD	Streambed Sediment	Riparian	Water Quality	Hydrology	Biological Processes
Vashon-Maury Islands										
McCloud Ck.	1	P	DG	DG	P	DG	P	DG	DG	P
Sylvan Ck	2	P	P	DG	P	DG	DG	DG	DG	P
Corbin Beach Creek	3	DG	DG	DG	DG	DG	DG	DG	DG	na
Unnamed creek	4	DG	DG	DG	DG	DG	DG	DG	DG	na
Unnamed creek	5	DG	DG	DG	DG	DG	DG	DG	DG	na
Unnamed creek	6	DG	DG	DG	DG	DG	DG	DG	DG	na
Water Wheel Creek	7	P	DG	DG	P	P	P	DG	DG	P
Unnamed creek	8	DG	DG	DG	DG	DG	DG	DG	DG	na
Cedarhurst Ck.	9	DG	DG	DG	DG	DG	DG	DG	DG	na
McCormick Ck.	10	P	DG	DG	P	DG	DG	DG	DG	P
Baldwin Ck.	11	P	DG	DG	F	P	F	DG	DG	P
Shinglemill Ck.	12 (15.0159)	G	DG	F	P	P	P	DG	P	na
Needle Ck	12 A	G	DG	DG	DG	DG	P	G	DG	na
J + Y Creek	12 C	G	DG	DG	DG	DG	DG	DG	DG	na
Pit Bull Creek	12 D	F	DG	DG	DG	DG	DG	DG	DG	na
Unnamed creek	12 E	F	DG	DG	DG	DG	DG	DG	DG	na
Unnamed creek	13	P	P	P	P	P	F	DG	DG	P
Unnamed creek	14	DG	DG	DG	DG	DG	DG	DG	DG	na
Ober Creek	15 (15.0158)	P	DG	DG	P	P	DG	DG	DG	P
Skeeder Creek	16 (15.0157)	DG	DG	DG	G	F	DG	DG	DG	na
Cove Creek	17	DG	DG	DG	DG	DG	DG	DG	DG	na
Unnamed creek	18	DG	DG	DG	DG	DG	DG	DG	DG	na
Leo's Creek	19	DG	DG	DG	G	P	DG	DG	DG	na
Robinwood Ck.	20 (15.0155)	DG	DG	DG	G	F	DG	DG	DG	na
Green Valley Ck.	21 (15.0154)	P	DG	DG	G	DG	DG	DG	DG	p
Unnamed creek	22	DG	DG	DG	DG	DG	DG	DG	DG	na
Christianson Ck	23 (15.0153)	G	DG	DG	DG	DG	DG	DG	DG	na

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MATRIX 4: Identified habitat conditions that limit natural salmonid production in WRIA 9 (continued)

Stream Name	Stream Number (WRIA #)	Access	Floodplain Conditions	Channel Conditions	LWD	Streambed Sediment	Riparian	Water Quality	Hydrology	Biological Processes
Vashon-Maury Islands										
Unnamed creek	24	P	DG	DG	DG	DG	DG	DG	DG	P
Unnamed creek	25	DG	DG	DG	DG	DG	DG	DG	DG	na
Unnamed creek	26	DG	DG	DG	DG	DG	DG	DG	DG	na
Unnamed creek	27	P	DG	DG	DG	DG	DG	DG	DG	P
Unnamed creek	28	P	DG	DG	DG	DG	DG	DG	DG	P
Unnamed creek	29	P	DG	DG	DG	DG	DG	DG	DG	P
Bates Creek	30 (15.0152)	DG	DG	DG	DG	DG	DG	DG	DG	na
Paradise Cove Creek	31	DG	DG	DG	DG	DG	DG	DG	DG	na
Sealth Creek	32 (15.0149)	P	DG	DG	DG	P	DG	DG	DG	P
S 1 Creek	33	p	DG	DG	DG	DG	DG	DG	DG	P
Spring Beach Creek	34	P	DG	DG	F	P	P	DG	F	P
S 2 Creek	35	G	DG	DG	DG	DG	P	DG	DG	na
Slaughters Ck.	36	P	P	DG	DG	DG	P	DG	DG	P
Tahlequah Ck.	37	G	DG	P	F	P	DG	DG	DG	na
Chen Creek	38	DG	DG	DG	DG	DG	DG	DG	DG	na
Lost Lake Ck.	39	DG	DG	DG	DG	DG	DG	DG	DG	na
Shawnee Creek	40	P	P	DG	DG	DG	DG	DG	DG	P
Fisher Creek	41 (15.0139)	DG	DG	DG	DG	P	DG	DG	DG	na
Judd Creek	42 (15.0129)	G	DG	DG	DG	DG	DG	DG	DG	na
Tsugwalla Ck.	43 (15.0126)	P	P	P	DG	P	P	DG	P	P
Raab's Lagoon Creek	44	G	DG	DG	DG	P	DG	DG	DG	na
Mileta Creek	45	P	DG	DG	P	P	DG	DG	DG	P
N. Dockton Ck.	46	DG	DG	DG	DG	DG	DG	DG	DG	na
Mid Dockton Creek	47	DG	DG	DG	DG	DG	DG	DG	DG	na

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MATRIX 4: Identified habitat conditions that limit natural salmonid production in WRIA 9 (continued)

Stream Name	Stream Number (WRIA #)	Access	Floodplain Conditions	Channel Conditions	LWD	Streambed Sediment	Riparian	Water Quality	Hydrology	Biological Processes
Vashon-Maury Islands										
S. Dockton Ck.	48	DG	DG	DG	DG	DG	DG	DG	DG	na
Unnamed creek	49	DG	DG	DG	DG	DG	DG	DG	DG	na
Unnamed creek	50	DG	DG	DG	DG	DG	DG	DG	DG	na
Unnamed creek	51	DG	DG	DG	DG	DG	DG	DG	DG	na
Unnamed creek	52	DG	DG	DG	DG	DG	DG	DG	DG	na
Unnamed creek	53	DG	DG	DG	DG	DG	DG	DG	DG	na
Unnamed creek	54	DG	DG	DG	DG	DG	DG	DG	DG	na
Unnamed creek	55	DG	DG	DG	DG	DG	DG	DG	DG	na
Unnamed creek	56	DG	DG	DG	DG	DG	DG	DG	DG	na
Maury Island										
Park Creek	57	DG	DG	DG	DG	DG	DG	DG	DG	na
Unnamed creek	58	DG	DG	DG	DG	DG	DG	DG	DG	na
Unnamed creek	59	DG	DG	DG	DG	DG	DG	DG	DG	na
Unnamed creek	60	DG	DG	DG	DG	DG	DG	DG	DG	na
Unnamed creek	61	DG	DG	DG	DG	DG	DG	DG	DG	na
Ellis Creek	62	P	P	DG	DG	P	DG	DG	DG	P
Ellisport Creek	63	G	DG	DG	DG	P	DG	DG	DG	na
Beal Creek	64	P	DG	DG	DG	DG	DG	DG	DG	P
Gorsuch Creek	65	G	DG	DG	F	F	F	DG	DG	na
Dilworth Creek	66	G	DG	DG	DG	G	P	DG	DG	na
Glen Acres Ck.	67	P	DG	DG	DG	P	P	DG	DG	P
Unnamed creek	68	DG	DG	DG	DG	DG	DG	DG	DG	na
Unnamed creek	69	DG	DG	DG	DG	DG	DG	DG	DG	na
Unnamed creek	70	DG	DG	DG	DG	DG	DG	DG	DG	na
Unnamed creek	71	DG	DG	DG	DG	DG	DG	DG	DG	na
Unnamed creek	72	DG	DG	DG	DG	DG	DG	DG	DG	na
Unnamed creek	73	DG	DG	DG	DG	DG	DG	DG	DG	na
Unnamed creek	74	DG	DG	DG	DG	DG	DG	DG	DG	na

G = Good F = Fair P = Poor DG = Data Gap na = not applicable