



Clallam County
Department of Community Development
223 East Fourth Street, Suite 5
Port Angeles, WA 98362

Ken Koch
Water Quality Program
WA Department of Ecology
POB 47600
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March 21, 2008

Dear Ken,

Thanks for this opportunity to comment on the draft 2008 State Water Quality Report. We appreciate the time that DOE has taken working with local groups such as Streamkeepers of Clallam County to assure that the State's assessment of water quality is as comprehensive as possible, and we were happy to be able to upload most of our data from our Microsoft Access database directly into DOE's Environmental Information Management (EIM) database without too much difficulty. Congratulations and thanks to all your staff!

We need more time to formulate comments related to two areas. In both cases, we hope to submit those comments by March 28. You indicated on the phone that such a delay would be acceptable.

- After conferring with Mike Herold, we are going to need more time to examine your fecal coliform listings and criteria.
- We will be commenting on three bioassessment listings in the Report—listing numbers 47010, 47021, and 47025; but prior to that, we will be performing some further analysis of the data.

Mr. Herold asked that we submit the rest of our comments as soon as possible, and so we are doing that now. We've attached a Microsoft Excel workbook with comments on specific listings, divided into three worksheets: "Listing Errors," "Missing Listings," and "Basis or Remark Problems". Below are some further comments to accompany those worksheets.

1. **"Listing Errors":**

- a. **Bioassessment:** We submitted bioassessment scores at 3 sites on lower Jimmycomelately Creek (listing 42823). The lower 2 sites showed impairment, and although these were relatively new sites on a stream recently restored to its historic channel, our interpretation of the 303(d) list is that one uses the available data to make a listing and then investigates further as part of the preliminary TMDL process. To assume that these sites will restore themselves to biological health seems unwarranted. The 0.6 site, upstream of the restoration project, does not show impairment, but we don't feel it's justified to lump all 3 of these sites together to claim there is no impairment.
- b. **Fecal coliform:** In a phone conversation on 4/24/07, Mr. Herold indicated that the "percent-above criterion" could be applied to a data set of longer than a single year. Since Streamkeepers has been collecting fecal coliform data on a quarterly basis since 1999, we would submit that our entire data set since that time should be considered the reporting period, unless there is both statistical and causal reason to suspect a trend. Otherwise, we believe that nonpoint pollutant sources of fecal coliform have been generally unchanged over the past decade. At Bagley 0.0, we see reason to differentiate the data collected through 2003 from that collected since 2006; however, at Siebert 0.6, we see no trend or discontinuity in this quarterly dataset, and therefore believe the reporting period should start in 1999. Since the mouth of Siebert Creek has been considered for creation of a public park, there is reason to protect these waters from the standpoint of human beneficial use.

(continued)

2. **“Missing Listings”:**

- a. **Bioassessment:** The Water Quality Report fails to list bioassessment sites with only one year of data. Per conversation with Mr. Herold, this appears to be a mistake on DOE’s part. Both he and Chad Brown acknowledged that Streamkeepers’ bioassessment tool, the 10-metric genus-level B-IBI for the Puget Sound lowlands developed by Karr et al., has well-established reference sites and therefore does not require two years of data for listings. Furthermore, Mr. Herold and Mr. Brown solicited Streamkeepers’ recommendations as to appropriate analytical procedures for interpreting the B-IBI in terms of the state WQ Report (re-attached with this letter), and they have told us on numerous occasions that they were accepting the recommendations therein in toto. This document does not rule out sites on the basis of less than two years of data. We believe that if the data is sound and interpreted conservatively (as described in the above-mentioned document), reliable calls can be made for Categories 1, 2, or 5.
- b. **Fecal coliform:** At Bagley 0.7, we see no reason to segregate the dataset, with a TNTC exceedance as late as fall 2006, and therefore believe the reporting period should be the entire body of data since 1999. And since this site is adjacent to the well-used Olympic Discovery Trail, there is a human beneficial use at stake. In contrast, at Lake 0.0 (as well as our other fecal sites on Lake Creek), there has not been an exceedance of 100 since 2001, so we agree with the non-listing.
- c. **Turbidity:** In 2006, we submitted our raw turbidity data along with a file detailing what we believed to be Category 2 data, with at least one exceedance of the criterion in each case. These sites do not appear in the state WQ report.

3. **“Basis or Remark Problems”:** These all relate to Bioassessment listings where Basis or Remark comments are incorrect or incomplete. However, we haven’t noted all of the cases in the Bioassessment data where Basis or Remark comments haven’t been updated to 2008 format, because we’ve been told that this problem was caused by a data-entry problem that will be corrected in the final report. (It seems that in most or all cases of the latter problem, there is the phrase, “2008 Basis statement carried over from 2004”.)

We appreciate this opportunity to comment on your draft report and hope to submit the remainder of our comments by March 28.

Sincerely,

Ed Chadd, Streamkeepers program manager

Draft 2008 WQA missing or incorrect Basis and Remarks & SK's comments

(N.B. Not every SK listing was checked for complete Basis and Remarks--see cover letter.)

Listing ID (hotlink)	Category	SK Site Name	Water Body Name	Parameter	Basis or Remarks Comment Corrections
42956	5	Bagley 1.2 & 1.8	BAGLEY CREEK	Bioassessment	Remove 2004 Remarks comment; "This listing was previously placed on Category 4C for biological data in accordance with Policy 1-11. The listing has been moved to Category 2", most important to change those sites now listed as Category 5, for others no longer relevant.
42962	5	Bell 0.1	BELL CREEK	Bioassessment	Remove 2004 Remarks comment; "This listing was previously placed on Category 4C for biological data in accordance with Policy 1-11. The listing has been moved to Category 2", most important to change those sites now listed as Category 5, for others no longer relevant.
42963	5	Bell 0.5 & 0.8	BELL CREEK	Bioassessment	Remove 2004 Remarks comment; "This listing was previously placed on Category 4C for biological data in accordance with Policy 1-11. The listing has been moved to Category 2", most important to change those sites now listed as Category 5, for others no longer relevant.
42964	5	Bell 1.8	BELL CREEK	Bioassessment	Remove 2004 Remarks comment; "This listing was previously placed on Category 4C for biological data in accordance with Policy 1-11. The listing has been moved to Category 2", most important to change those sites now listed as Category 5, for others no longer relevant.
42817	5	Cassalery 0.5, 0.6 & 1.1	CASSALERY CREEK	Bioassessment	Remove 2004 Remarks comment; "This listing was previously placed on Category 4C for biological data in accordance with Policy 1-11. The listing has been moved to Category 2", most important to change those sites now listed as Category 5, for others no longer relevant.

42818	5	Cassalery 1.6	CASSALERY CREEK	Bioassessment	Remove 2004 Remarks comment; "This listing was previously placed on Category 4C for biological data in accordance with Policy 1-11. The listing has been moved to Category 2", most important to change those sites now listed as Category 5, for others no longer relevant.
42902	5	Ennis 0.1	ENNIS CREEK	Bioassessment	Remove 2004 Remarks comment; "This listing was previously placed on Category 4C for biological data in accordance with Policy 1-11. The listing has been moved to Category 2", most important to change those sites now listed as Category 5, for others no longer relevant.
42823	5	JCL 0.2a, 0.4 & 0.6	JIMMYCOMELATELY CREEK	Bioassessment	Remove 2004 Remarks comment; "This listing was previously placed on Category 4C for biological data in accordance with Policy 1-11. The listing has been moved to Category 2", most important to change those sites now listed as Category 5, for others no longer relevant.
42973	5	Peabody 0.2, 0.5 & 1.0	PEABODY CREEK	Bioassessment	Remove 2004 Remarks comment; "This listing was previously placed on Category 4C for biological data in accordance with Policy 1-11. The listing has been moved to Category 2", most important to change those sites now listed as Category 5, for others no longer relevant.
42954	2	Bagley 0.0 & 0.1	BAGLEY CREEK	Bioassessment	Remove 2004 Remarks comment; "This listing was previously placed on Category 4C for biological data in accordance with Policy 1-11. The listing has been moved to Category 2", most important to change those sites now listed as Category 5, for others no longer relevant.
42955	2	Bagley 0.7	BAGLEY CREEK	Bioassessment	Remove 2004 Remarks comment; "This listing was previously placed on Category 4C for biological data in accordance with Policy 1-11. The listing has been moved to Category 2", most important to change those sites now listed as Category 5, for others no longer relevant.

42957	2	Bagley 4.6	BAGLEY CREEK	Bioassessment	Remove 2004 Remarks comment; "This listing was previously placed on Category 4C for biological data in accordance with Policy 1-11. The listing has been moved to Category 2", most important to change those sites now listed as Category 5, for others no longer relevant.
42907	2	Barnes 0.0	BARNES CREEK	Bioassessment	Remove 2004 Remarks comment; "This listing was previously placed on Category 4C for biological data in accordance with Policy 1-11. The listing has been moved to Category 2", most important to change those sites now listed as Category 5, for others no longer relevant.
42887	2	Bear 2.5	BEAR CREEK	Bioassessment	Remove 2004 Remarks comment; "This listing was previously placed on Category 4C for biological data in accordance with Policy 1-11. The listing has been moved to Category 2", most important to change those sites now listed as Category 5, for others no longer relevant.
22326	2	Dungeness 11.6	DUNGENESS RIVER	Bioassessment	Remove 2004 Remarks comment; "This listing was previously placed on Category 4C for biological data in accordance with Policy 1-11. The listing has been moved to Category 2", most important to change those sites now listed as Category 5, for others no longer relevant.
42903	2	Ennis 1.4 & 1.6	ENNIS CREEK	Bioassessment	Remove 2004 Remarks comment; "This listing was previously placed on Category 4C for biological data in accordance with Policy 1-11. The listing has been moved to Category 2", most important to change those sites now listed as Category 5, for others no longer relevant.
40668	1	JCL 0.8	JIMMYCOMELATELY CREEK	Bioassessment	Delete incorrect Basis comment; "Streamkeepers of Clallam County unpublished data show biological conditions are unimpaired based on the Benthic Index of Biological Integrity (BIBI) scores from macroinvertebrate samples collected in 2002 at site JCL 0.8." Add current data to Basis , "B-IBI score of 44 @ JCL 0.8 10/11/2002(CCSK)", "B-IBI score of 42 @ JCL 0.8 10/3/2005(CCSK)".

42832	2	Johnson 0.0 & 0.6	JOHNSON CREEK	Bioassessment	Remove 2004 Remarks comment; "This listing was previously placed on Category 4C for biological data in accordance with Policy 1-11. The listing has been moved to Category 2", most important to change those sites now listed as Category 5, for others no longer relevant.
42867	2	Lees 0.1 & 0.6	LEES CREEK	Bioassessment	Missing Basis comments: "B-IBI score of 34 @ Lees 0.1 9/21/2002 (CCSK)", "B-IBI score of 30 @ Lees 0.1 10/14/1999 (CCSK)." Remove 2004 Remarks comment; "This listing was previously placed on Category 4C for biological data in accordance with Policy 1-11. The listing has been moved to Category 2", most important to change those sites now listed as Category 5, for others no longer relevant
42868	2	Lees 0.8	LEES CREEK	Bioassessment	Remove 2004 Remarks comment; "This listing was previously placed on Category 4C for biological data in accordance with Policy 1-11. The listing has been moved to Category 2", most important to change those sites now listed as Category 5, for others no longer relevant.
22329	2	Lyre 0.8a	LYRE RIVER	Bioassessment	Missing Basis comment & SK data: "B-IBI score of 34 @ Lyre 0.8a 10/11/2004(CCSK)". Location ID CCWR 00673 same segment as this listing ID. Remove 2004 Remarks comment; "This listing was previously placed on Category 4C for biological data in accordance with Policy 1-11." unless still relevant to this location.
42948	2	Morse 0.3	MORSE CREEK	Bioassessment	Remove 2004 Remarks comment; "This listing was previously placed on Category 4C for biological data in accordance with Policy 1-11. The listing has been moved to Category 2", most important to change those sites now listed as Category 5, for others no longer relevant.
42949	2	Morse 1.1	MORSE CREEK	Bioassessment	Remove 2004 Remarks comment; "This listing was previously placed on Category 4C for biological data in accordance with Policy 1-11. The listing has been moved to Category 2", most important to change those sites now listed as Category 5, for others no longer relevant.

42950	2	Morse 1.5	MORSE CREEK	Bioassessment	Missing Basis comment & SK data: "B-IBI score of 34 @ Morse 1.8 10/3/1999(CCSK)", "B-IBI score of 36 @ Morse 1.8 9/18/2000(CCSK)", "B-IBI score of 38 @ Morse 1.8 9/15/2001(CCSK)", "B-IBI score of 38 @ Morse 1.7 10/7/2006(CCSK)". Remove 2004 Remarks comment; "This listing was previously placed on Category 4C for biological data in accordance with Policy 1-11. The listing has been moved to Category 2", most important to change those sites now listed as Category 5, for others no longer relevant.
42951	2	Morse 4.0	MORSE CREEK	Bioassessment	Incorrect Basis comment "Streamkeepers of Clallam County unpublished data show biological conditions are degraded based on the Benthic Index of Biological Integrity (BIBI) scores from macroinvertebrate samples collected in 1999 at site Morse 4.0." should be changed to conform to others and have correct date. "B-IBI score of 36 @ Morse 4.0 10/11/2005(CCSK)". Remove 2004 Remarks comment; "This listing was previously placed on Category 4C for biological data in accordance with Policy 1-11. The listing has been moved to Category 2", most important to change those sites now listed as Category 5, for others no longer relevant.
40698	2	Salt 4.2	SALT CREEK	Bioassessment	Update Basis comment to current standard & add missing years. "B-IBI score of 40 @ Salt 4.2 10/2/2002(CCSK)", "B-IBI score of 48 @ Salt 4.2 10/3/2003(CCSK)", "B-IBI score of 44 @ Salt 4.2 10/1/2004(CCSK)", "B-IBI score of 44 @ Salt 4.2 10/8/2006(CCSK)".

42938	2	Salt 1.5	SALT CREEK	Bioassessment	Update Basis comment to current standard & add missing years. "B-IBI score of 38 @ Salt 1.5 10/2/2002(CCSK)", "B-IBI score of 38 @ Salt 1.5 10/3/2003(CCSK)", "B-IBI score of 36 @ Salt 1.5 10/2/2004(CCSK)", "B-IBI score of 38 @ Salt 1.5 10/8/2006(CCSK)". Remove 2004 Remarks comment; "This listing was previously placed on Category 4C for biological data in accordance with Policy 1-11. The listing has been moved to Category 2", most important to change those sites now listed as Category 5, for others no longer relevant.
42939	2	Salt 5.4	SALT CREEK	Bioassessment	Update Basis comment to current standard & add missing year. "B-IBI score of 38 @ Salt 5.4 10/2/2002(CCSK)", "B-IBI score of 44 @ Salt 5.4 10/3/2005(CCSK)". Remove 2004 Remarks comment; "This listing was previously placed on Category 4C for biological data in accordance with Policy 1-11. The listing has been moved to Category 2", most important to change those sites now listed as Category 5, for others no longer relevant.
42931	2	Siebert 0.6	SIEBERT CREEK	Bioassessment	Update Basis comment to current standard & add missing years. "B-IBI score of 40 @ Siebert 0.6 10/16/2000(CCSK)", "B-IBI score of 36 @ Siebert 0.6 9/27/2001(CCSK)", "B-IBI score of 40 @ Siebert 0.6 10/7/2002(CCSK)", "B-IBI score of 42 @ Siebert 0.6 10/8/2003(CCSK)", "B-IBI score of 42 @ Siebert 0.6 10/1/2004(CCSK)", "B-IBI score of 38 @ Siebert 0.6 10/7/2005(CCSK)", "B-IBI score of 34 @ Siebert 0.6 10/9/2006(CCSK)". Remove 2004 Remarks comment; "This listing was previously placed on Category 4C for biological data in accordance with Policy 1-11. The listing has been moved to Category 2", most important to change those sites now listed as Category 5, for others no longer relevant.
42932	2	Siebert 3.0	SIEBERT CREEK	Bioassessment	Remove 2004 Remarks comment; "This listing was previously placed on Category 4C for biological data in accordance with Policy 1-11. The listing has been moved to Category 2", most important to change those sites now listed as Category 5, for others no longer relevant.

40691	2	Siebert 3.8	SIEBERT CREEK	Bioassessment	Update Basis comment to current standard & add missing years. "B-IBI score of 42 @ Siebert 3.8 9/27/2001(CCSK)", "B-IBI score of 44 @ Siebert 3.8 10/7/2002(CCSK)", "B-IBI score of 46 @ Siebert 3.8 10/8/2003(CCSK)"
42895	2	Valley 0.4, 0.7 & 1.0	VALLEY CREEK	Bioassessment	Update Basis comment to current standard & add missing years. "B-IBI score of 28 @ Valley 0.4 10/15/2000(CCSK)", "B-IBI score of 38 @ Valley 0.4 10/14/2001(CCSK)", "B-IBI score of 38 @ Valley 0.4 10/6/2002(CCSK)", "B-IBI score of 38 @ Valley 0.7 10/2/1999(CCSK)", "B-IBI score of 44 @ Valley 1.0 10/12/2003(CCSK)", "B-IBI score of 42 @ Valley 1.0 10/10/2004(CCSK)", "B-IBI score of 40 @ Valley 1.0 10/9/2005(CCSK)". Remove 2004 Remarks comment; "This listing was previously placed on Category 4C for biological data in accordance with Policy 1-11. The listing has been moved to Category 2", most important to change those sites now listed as Category 5, for others no longer relevant.
42896	2	Valley 1.2	VALLEY CREEK	Bioassessment	Remove 2004 Remarks comment; "This listing was previously placed on Category 4C for biological data in accordance with Policy 1-11. The listing has been moved to Category 2", most important to change those sites now listed as Category 5, for others no longer relevant.
40700	1	Bear 0.1	BEAR CREEK	Bioassessment	Update Basis comment to current standard; "B-IBI score of 46 @ Bear 0.1 9/19/2000(CCSK)", "B-IBI score of 46 @ Bear 0.1 9/16/2001(CCSK)", "B-IBI score of 46 @ Bear 0.1 10/13/2002(CCSK)"
40703	1	Bear S.F. 0.2	BEAR CREEK, S.F.	Bioassessment	Update Basis comment to current standard; "B-IBI score of 46 @ Bear SF 0.2 9/20/2000(CCSK)", "B-IBI score of 48 @ Bear SF 0.2 9/15/2001(CCSK)", "B-IBI score of 48 @ Bear SF 0.2 10/12/2002(CCSK)"
40688	1	Peabody 1.4	PEABODY CREEK	Bioassessment	Update Basis comment to current standard; "B-IBI score of 48 @ Peabody 1.4 11/1/2000(CCSK)"
40692	1	Siebert WF 2.3	SIEBERT CREEK, W.F.	Bioassessment	Update Basis comment to current standard & add missing year. "B-IBI score of 46 @ Siebert WF 2.3 10/8/2002(CCSK)", "B-IBI score of 48 @ Siebert WF 2.3 10/13/2005(CCSK)"

Draft 2008 WQA listing errors, SK's recommendations & comments					
Fecal & Bioassessment data: (Based on assumption that Streamkeepers Fecal data submitted to EIM on 11/29/06 & letter of recommended Bioassessment calls dated 10/12/07 were used in determination of 2008 draft.)					
Listing ID (hotlink)	SK recommended listing category	SK Site Name	Water Body Name	Parameter	Comments
42823	5	JCL 0.2a, 0.4 & 0.6	JIMMYCOMELATELY CREEK	Bioassessment	Listed as category 2 in 2008 WQA draft; Should be listed as cat 5; 2004 & 2005 scores from 16 to 34 @ 2 sites, restored channel.
6971	2	Bagley 0.0	BAGLEY CREEK	Fecal Coliform	Listed as category 2 in 2008 WQA draft; we believe that the reporting period for this dataset should begin 5/23/06. Same site/parameter as Listing ID 45037, 2004 Basis carried over.
45037	2	Bagley 0.0	BAGLEY CREEK	Fecal Coliform	Listed as category 2 in 2008 WQA draft; we believe that the reporting period for this dataset should begin 5/23/06. Same site/parameter as Listing ID 6971, 2008 Basis new data added.
40668	2	JCL 0.8	JIMMYCOMELATELY CREEK	Bioassessment	Listed as category 1 in 2008 WQA draft; 2002 score of 44&42 = comp = cat 2
21475	5	Siebert 0.6	SIEBERT CREEK	Fecal Coliform	Listed as category 1 in 2008 WQA draft; 11% samples w/3 counts above 100, with no evidence of trend since 1999.

Draft 2008 WQA missing listings & SK's comments**Fecal & Bioassessment data:** (Based on assumption that Streamkeepers Fecal data submitted to EIM on 11/29/06 & letter of recommended Bioassessment calls dated 10/12/07 were used in determination of 2008 draft.)

SK recommended Listing Category	Location ID	SK Site Name	Water Body Name	Parameter	Comments
5	CCWR_00003	Bagley 0.7	BAGLEY CREEK	Fecal Coliform	14.2% samples w/2 counts above 100 (AA)
2	CCWR_00613	Bagley 6.2	BAGLEY CREEK	Bioassessment	2005 score of 38 = comp = cat 2, only one year's data
2	CCWR_00591	Barnes 0.1	BARNES CREEK	Bioassessment	2005 score of 38 = comp = cat 2, only one year data
2	CCWR_00615	Barnes 0.9	BARNES CREEK	Bioassessment	2005 score of 44 = comp = cat 2, only one year data
2	CCWR_00662	Clallam 2.4	CLALLAM RIVER	Bioassessment	2004 score of 34 = comp = cat 2, only one year data
2	CCWR_00663	Clallam 5.4	CLALLAM RIVER	Bioassessment	2004 score of 42 = comp = cat 2, only one year data
2	CCWR_00674	Deep 0.9	DEEP CREEK	Bioassessment	2004 score of 42 = comp = cat 2, only one year data
2	CCWR_00675	Deep 1.5	DEEP CREEK	Bioassessment	2004 score of 44 = comp = cat 2, only one year data
2	CCWR_00607	Dry 2.2	DRY CREEK	Bioassessment	2005 score of 42 = comp = cat 2, only one year data
2	CCWR_00585	Dungeness 0.7	DUNGENESS RIVER	Bioassessment	2004 score of 36 = comp = cat 2, only one year data
2	CCWR_00611	Dungeness 15.7	DUNGENESS RIVER	Bioassessment	2005 score of 42 = comp = cat 2, only one year data
2	CCWR_00676	E.Twin 1.9a	E. TWIN RIVER	Bioassessment	2004 score of 42 = comp = cat 2, only one year data
2	CCWR_00555	Elk 2.9	ELK CREEK	Bioassessment	2005 score of 44 = comp = cat 2, only one year data
2	CCWR_00616	Ennis 6.6	ENNIS CREEK	Bioassessment	2005 score of 42 = comp = cat 2, only one year data
2	CCWR_00584	Gray Wolf 1.0	GRAY WOLF RIVER	Bioassessment	2004 score of 42 = comp = cat 2, only one year data
2	CCWR_00665	Hoko 9.5	HOKO RIVER	Bioassessment	2004 score of 36 = comp = cat 2, only one year data
2	CCWR_00666	Hoko 18.0	HOKO RIVER	Bioassessment	2004 score of 40 = comp = cat 2, only one year data
2	CCWR_00627	Indian 4.9	INDIAN CREEK	Bioassessment	2006 score of 34 = comp = cat 2, only one year data

2	CCWR_00589	Morse 5.6	MORSE CREEK	Bioassessment	2004 score of 42 = comp = cat 2, only one years data.
2	CCWR_00669	Pysht 4.2	PYSHT RIVER	Bioassessment	2004 score of 32 = comp = cat 2, only one years data
2	CCWR_00671	Sekiu 2.5	SEKIU RIVER	Bioassessment	2004 score of 40 = comp = cat 2, only one years data
2	CCWR_00670	Sekiu 6.9	SEKIU RIVER	Bioassessment	2004 score of 42 = comp = cat 2, only one years data
2	CCWR_00679	W. Twin 0.3	W. TWIN RIVER	Bioassessment	2004 36 = comp = cat 2; only one years data
1	CCWR_00677	E.Twin 1.2a	E. TWIN RIVER	Bioassessment	2004 score of 46 = healthy = cat 1, only one years data
1	CCWR_00695	Hughes 0.0	HUGHES CREEK	Bioassessment	2006 score of 48 = healthy = cat 1, only one years data
1	CCWR_00618	Indian 0.3	INDIAN CREEK	Bioassessment	2006 score of 46 = healthy = cat 1, only one years data
1	CCWR_00037	Lake trib @LB6.2	LAKE CREEK	Bioassessment	2000-2 scores 46 & 48 = healthy = cat 1
1	CCWR_00144	Salt 6.4	SALT CREEK	Bioassessment	2004 score of 48 = healthy = cat 1, only one years data
1	CCWR_00678	W. Twin 1.0	W. TWIN RIVER	Bioassessment	2004 score of 46 = healthy = cat 1, only one years data

Turbidity data reported and believed to meet the criteria but not found on the draft 2008 WQA report:

SK recommended Listing Category	Location ID	SK Site Name	Water Body Name (class)	Parameter	Comments/Basis
2	CCWR_00608	Dry 0.8	DRY CREEK (AA)	Turbidity	Difference of 40NTU's from u/s reference site CCWR_00607 on 8/17/2005
2	CCWR_00557	Elk 0.2	ELK CREEK (AA)	Turbidity	Difference of 17NTU's from u/s reference site CCWR_00552 on 1/28/2004
2	CCWR_00041	Lees 0.1	LEES CREEK (A)	Turbidity	Difference of 74NTU's from u/s reference site CCWR_00044 on 4/13/2003
2	CCWR_00141	Salt 1.5	SALT CREEK (AA)	Turbidity	Difference of 44NTU's from u/s reference site CCWR_00142 on 1/26/2003 & difference of 9NTU's from u/s reference site CCWR_00143 on 1/23/2005
2	CCWR_00064	Valley 0.4	VALLEY CREEK (A)	Turbidity	Difference of 57NTU's from u/s reference site CCWR_00068 on 1/26/2003 & difference of 42NTU's from u/s reference site CCWR_00068 on 4/13/2003

Streamkeepers of Clallam County

Proposed Bioassessment Calls for Dept. of Ecology 2006 Water Quality Assessment (i.e., combined 303(d)/305(b) list under the federal Clean Water Act)

Under direction of the federal EPA, DOE is including bioassessment as a criterion for potential water-quality ratings of “Impaired” [303(d)list] under the Clean Water Act. However, DOE does not have a set of rules governing how to relate B-IBI scores to water-quality ratings. Streamkeepers plans to advise DOE on not only specific ratings for specific stream sites, but also on what rules to follow when making those determinations. The table below includes both our proposed calls and the rationales (i.e., rules) for making those calls.

B-IBI score ratings and definitions (for more information, see <http://www.clallam.net/streamkeepers>):

50-46: Healthy—Supporting the full range of biological diversity expected for that site.

44-36: Compromised—Many of the most sensitive species no longer present. Impacts expected to one or more salmon life-stages.

34-28: Impaired—Notable loss of biodiversity and key species (mayfly/stoneflies/caddis flies). Not likely to support self-sustaining salmon populations.

26-18: Highly impaired—Substantial loss of once-native life-forms, with taxa richness reduced by about half. Highly adverse conditions for salmon.

16-10: Critically impaired—Increasingly dominated by species adapted to disturbed environments.

General rule: Relate the categories above to the three classes available on DOE’s Water Quality Assessment:

B-IBI “Healthy” = DOE Category 1, “meets listed standards”

B-IBI “Compromised” = DOE Category 2, “waters of concern”

B-IBI “Impaired” and below = DOE Category 5, “impaired” (i.e., the 303(d) list under the Clean Water Act, which requires cleanup)

DOE agreed with the above general rule in 2004, and we expect them to continue to agree. So the borderlines for DOE categories would be as follows:

>45 = Category 1 (“Healthy”)

<45 & >35 = Category 2 (“Compromised”)

<35 = Category 5 (“Impaired”)

Caveats: The above general rule needs to be qualified, however, by the following cases:

- 1) If there is a single B-IBI score for a site that is near a DOE borderline (B-IBI “accuracy” is considered ± 4 , so “near” means “within 4”), or if there are multiple B-IBI scores for a site that straddle a DOE borderline, which way to make the call depends partly on which borderline it is:
 - a. For the Category 2 vs. 5 borderline, we need to be confident in a Category 5 (“Impaired”) call because of the need for solid proof before imposing regulatory authority.
 - b. For the Category 1 vs. 2 borderline, we should err on the side of caution in favor of the Category 2 (“Compromised”) list, since in a regulatory sense, this is simply a warning to pay attention to the site.
- 2) There may not be complete confidence in one or more B-IBI scores at a site, due to a “Questionable” rating or low specimen counts.
 - a. We define “Questionable” as QC procedures not having been completely followed or documented, and these samples are indicated by a ? in the QC column below. (Data that program managers believe to be completely unacceptable are not reported.)
 - b. We define “low specimen counts” as not having two “revised replicates” with at least 250 specimens each. (However, low specimen counts could be due to human influence rather than sampling problems.)
- 3) When there are several scores from a site, higher scores justify greater confidence in optimal sampling conditions and procedures. An anomalous low score may reflect sampling problems or unusual environmental conditions; but to get a high score, a sample has to have rich biodiversity, and if the critters are there, they’re there. [In statistical terms, if the null hypothesis is that there is no degradation of biological integrity at a site, there is a certain chance of a Type I error (“convict the innocent”) when you have a low score, but there is virtually no chance of a Type II error (“release the guilty”) when you have a high score.] In this sense, higher scores should be given greater weight in interpretation; however, a variation in scores between years may reflect a true variation in environmental conditions between those years.
- 4) All other things being equal, more recent scores should outweigh older scores, particularly when there is a sign of a trend.

Below are our proposed calls and rationales:

* denotes that the replicate was subsampled in the table below.

Site/Date	Visit ID	QC (? = Questionable)	Revised replicate counts:			B-IBI scores	B-IBI ratings	Proposed DOE call by site (& rationale):
<i>Bagley 0.0</i>			<i>Bagley ~200' u/s of mouth</i>					
10/7/2005	6123		533*	505*	504*	42	Compromised	Compromised (±4 of Healthy, but see Caveat 1b above)
<i>Bagley 0.1</i>			<i>Bagley ~400' u/s of mouth</i>					
10/9/1999	337		927	409	--	34	Impaired	Compromised (accuracy range of a single score crosses the borderline)
<i>Bagley 0.7</i>			<i>Bagley d/s of Discovery Trail bridge</i>					
10/11/2000	78		509	523	297	30	Impaired	Compromised (2 most recent scores + signs of a trend, along with a reason to believe that trend—recovery of the area subsequent to Discovery Trail bridge construction)
10/13/2001	286		556*	1273	626*	30	Impaired	
10/15/2002	1129		260	583*	595	32	Impaired	
10/8/2003	3933		755	1063	700	38	Compromised	
10/9/2006	7200		506*	449	502*	40	Compromised	
<i>Bagley 1.2</i>			<i>Bagley d/s of Hwy 101</i>					
10/9/1999	338		1197	991	507	36	Compromised	Compromised (2 scores just below borderline not sufficient for confidence in an Impaired call)
10/11/2000	79		718	446	489	34	Impaired	
10/13/2001	287		653	1403	950	34	Impaired	
<i>Bagley 1.8</i>			<i>Bagley nr. S. Bagley Creek Rd</i>					
10/9/1999	342		875	668	--	32	Impaired	Impaired (Probability of error with 2 good samples is .05 x .05; the same would be true if both scores were 34)
10/11/2000	80		615	935	819	32	Impaired	
<i>Bagley 4.6</i>			<i>Bagley @ Merrill Estates</i>					
10/14/2001	298		1027	1250	1545	42	Compromised	Compromised
10/15/2002	1121		647	944	535	36	Compromised	
<i>Bagley 6.2</i>			<i>Bagley @Township Line Rd</i>					
10/10/2005	6125		454	383	--	38	Compromised	Compromised
<i>Barnes 0.0</i>			<i>Barnes Creek mouth</i>					
10/6/2001	1722		510	447	--	40	Compromised	Compromised (NOTE: Entire creek is within Olympic NP. This site may be influenced by lake effect & lodge.)
9/21/2002	1614 ?		454	250	458	34	Impaired	
10/10/2003	4643		268	396	335	36	Compromised	
<i>Barnes 0.1</i>			<i>Barnes ~350' from mouth</i>					
10/10/2005	6096		504*	503*	505*	38	Compromised	Compromised (This site may be influenced by Hwy. 101.)
<i>Barnes 0.9</i>			<i>Barnes u/s of Marymere trail bridge</i>					
10/11/2005	6091		502*	509*	511*	44	Compromised	Compromised (May be due to large amount of fine sediment in system.)
<i>Bear (Salt) 0.0</i>			<i>Bear @ confluence w/Salt Cr.</i>					
10/3/2005	6115		520*	526*	506	42	Compromised	Compromised (see Bagley 0.0)
<i>Bear 0.1</i>			<i>Bear u/s of Hwy 101</i>					
9/19/2000	60		828	907	760	46	Healthy	Healthy
9/16/2001	314		945	1049	788	46	Healthy	
10/13/2002	1289		906	759	951	46	Healthy	
<i>Bear 2.5</i>			<i>Bear @ Misty Creek Lane</i>					
9/19/2000	61		1909	1573	2015	40	Compromised	Compromised
9/16/2001	303		2203	1223	2761	44	Compromised	
<i>Bear 5.1</i>			<i>Bear @powerlines on West Twin Rd</i>					
9/20/2000	64		613*	676*	845*	44	Compromised	Compromised (could be "Healthy," but see Caveats 1b & 3 above)
9/15/2001	316		1251	1330	2199	42	Compromised	
10/12/2002	1293		1992	668*	703*	46	Healthy	
<i>Bear SF 0.2</i>			<i>Bear SF d/s of West Twin Rd</i>					
9/20/2000	63		612*	588*	665*	46	Healthy	Healthy
9/15/2001	315		1804	1412	1268	48	Healthy	
10/12/2002	1290		866	1218	1293	48	Healthy	

<i>Bell 0.1</i>		<i>Bell ~320 ft. d/s of Schmuck Rd</i>				
10/10/1999	461	1487 854 1320	18	Highly impaired	Impaired (how impaired doesn't	
10/1/2000	44	255 437 482	16	Critically impaired	matter for terms of the 303(d) list)	
9/30/2001	312 ?	551 354 463	12	Critically impaired		
10/11/2005	6127	344 537* 460	10	Critically impaired		
<i>Bell 0.5</i>		<i>Bell @ Sequim treatment plant</i>				
10/10/1999	223	1521 564 1910	26	Highly impaired	Impaired (see Bell 0.1)	
<i>Bell 0.8</i>		<i>Bell @ Spath DOT site</i>				
10/26/2002	1303	563* 705 736*	16	Critically impaired	Impaired (see Bell 0.1)	
10/17/2003	3948	5132 352 4534	12	Critically impaired		
<i>Bell 1.8</i>		<i>Bell u/s of Brown Rd</i>				
10/4/2000	45	682 1063 987	20	Highly impaired	Impaired (see Bell 0.1)	
<i>Cassalery 0.5</i>		<i>Cassalery 300' d/s of Jamestown Rd</i>				
10/10/1999	462	325 488 346	22	Highly impaired	Impaired (see Bell 0.1)	
9/22/2000	81	425 570 667	18	Highly impaired		
9/22/2001	305	455 -- --	24	Highly impaired		
<i>Cassalery 0.6</i>		<i>Cassalery @ Jamestown Rd.</i>				
10/1/2002	1312	500 345 --	18	Highly impaired	Impaired (see Bell 0.1)	
<i>Cassalery 1.1</i>		<i>Cassalery u/s of Taylor Ranch Rd</i>				
9/25/1999	276	491 400 --	12	Critically impaired	Impaired (see Bell 0.1)	
9/22/2000	82	440 2994 1121	20	Highly impaired		
10/1/2002	1314	278 448 501	18	Highly impaired		
<i>Cassalery 1.6</i>		<i>Cassalery @ Clary Lane</i>				
9/25/1999	277	479 618 --	20	Highly impaired	Impaired (see Bell 0.1)	
10/13/2000	83	696 1243 1272	32	Impaired		
9/22/2001	306 ?	944 -- --	16	Critically impaired		
10/1/2002	1313	619 523 --	14	Critically impaired		
<i>Clallam 2.4</i>		<i>Lower Clallam Bugs 2004</i>				
10/5/2004	6215	543* 582* 577*	34	Impaired	Compromised (see Bagley 0.1)	
<i>Clallam 5.4</i>		<i>Upper Clallam Bugs 2004</i>				
10/5/2004	6298	564* 569* 569*	42	Compromised	Compromised (see Bagley 0.0)	
<i>Deep 0.9</i>		<i>Lower Deep Bugs 2004</i>				
10/11/2004	6304	317 284 571*	42	Compromised	Compromised (see Bagley 0.0)	
<i>Deep 1.5</i>		<i>Upper Deep Bugs 2004</i>				
10/13/2004	6312	524 582* 388	44	Compromised	Compromised (see Bagley 0.0)	
<i>Dry 2.2</i>		<i>Dry Creek @ 2844 W. Edgewood Dr.</i>				
9/25/2005	6141	515* 510* 514*	42	Compromised	Compromised (see Bagley 0.0)	
<i>Dungeness 0.7</i>		<i>Dungeness d/s of Schoolhouse Bridge</i>				
10/12/2004	4916	1860 3009 1081	36	Compromised	Compromised	
<i>Dungeness 11.6</i>		<i>Dungeness 0.2 mi d/s of USGS gage</i>				
10/14/2004	4915	323 288 664	34	Impaired	Compromised (see Bagley 0.1)	
<i>Dungeness 15.7</i>		<i>Dungeness d/s of Gray Wolf</i>				
9/30/2005	6143	504* 528* 511*	42	Compromised	Compromised (see Bagley 0.0)	
<i>Dungeness 5.9</i>		<i>Dungeness @ RR bridge</i>				
9/27/2005	6116	412 505* --	42	Compromised	Compromised (see Bagley 0.0)	
<i>Dungeness 6.6a</i>		<i>Dungeness rb side-channel u/s of Hwy 101</i>				
10/14/2004	4917	271 262 --	36	Compromised	Compromised	
<i>Dungeness 7.8</i>		<i>Dungeness @ #364 Meadows Development</i>				
9/27/2005	6131 ?	635 531 --	40	Compromised	No rating (single questionable sample)	
<i>E. Twin 1.2a</i>		<i>Lower E. Twin Bugs 2004</i>				
10/12/2004	6305	508 581 --*	46	Healthy	Healthy	
<i>E. Twin 1.9a</i>		<i>Upper E. Twin Bugs 2004</i>				
10/12/2004	6306	635* 458 549*	42	Compromised	Compromised (see Bagley 0.0)	

<i>Elk 1.9</i>		<i>Elk Cr. @ Stagecoach Pass (lower end of purchase)</i>				
10/16/2005	6051	533* 479 503*	48	Healthy	Healthy	
<i>Elk 2.9</i>		<i>Elk Creek trail d/s of Stringer Creek</i>				
10/17/2006	7240	511* 559* 544*	44	Compromised	Compromised (see Bagley 0.0)	
<i>Ennis 0.1</i>		<i>Ennis @ PA treatment plant</i>				
9/19/2000	73	314 278 --	32	Impaired	Impaired (2001-03 are all low counts, but population characteristics are similar across the years, with the exception of apparent Baetis hatches which dropped scores in 2001 & 2003)	
9/16/2001	308	453 -- --	26	Highly impaired		
10/4/2002	1365	109 46 61	32	Impaired		
10/5/2003	3672	49 102 40	22	Highly impaired		
<i>Ennis 1.4</i>		<i>Ennis @ Roosevelt MS</i>				
9/19/2000	74	355 528 --	32	Impaired	Compromised (ignore scores from 2001-2003, due to low counts--see Caveat 2b above; remaining Impaired score is from 2000 and within 4 of borderline, and last score, from 2004, is Compromised)	
9/16/2001	309	155 94 168	36	Compromised		
10/3/2002	1320	78 190 172	32	Impaired		
10/5/2003	3671 ?	110 47 18	30	Impaired		
10/17/2004	4929	842 513 410	38	Compromised		
<i>Ennis 1.6</i>		<i>Ennis d/s of power lines (NOTE: site of restoration project completed in June 2004)</i>				
10/18/2004	4934	507 867 --	32	Impaired	Compromised (Low count in 2005, but EPT taxa richness is similar to 2004, and 2005 score may be biased high due to the impact of low count on predator & dominance metrics)	
10/6/2005	6099	115 84 212	32	Impaired		
<i>Ennis 6.6</i>		<i>Ennis @ Heart of the Hills Campground off Loop A</i>				
10/21/2005	6092	511* 528* 298	42	Compromised	Compromised (see Bagley 0.0)	
<i>Gray Wolf 1.0</i>		<i>Gray Wolf @ bridge 1 mi. u/s of Dung Forks</i>				
10/10/2004	4923	892 886 1043	42	Compromised	Compromised (see Bagley 0.0)	
<i>Hoko 18.0</i>		<i>Upper Hoko2 Bugs 2004</i>				
10/7/2004	6310	619* 577* 590*	40	Compromised	Compromised	
<i>Hoko 3.2a</i>		<i>Lower Hoko Bugs 2004</i>				
10/4/2004	6302	602* 337 521	28	Impaired	Impaired	
<i>Hoko 9.5</i>		<i>Upper Hoko Bugs 2004</i>				
10/5/2004	6311	594* 574* 624*	36	Compromised	Compromised	
<i>Hughes 0.0</i>		<i>Hughes Creek 150' u/s of mouth</i>				
10/3/2006	7190	526* 527* 552*	48	Healthy	Healthy	
<i>Indian 0.3</i>		<i>Indian 23' u/s of depth gauge @ Lk Aldwell Rd bridge</i>				
10/11/2006	7206	508* 535* 519*	46	Healthy	Healthy	
<i>Indian 4.9</i>		<i>Indian Crk d/s of 101 bridge near South Shore Rd.</i>				
10/11/2006	7209	514* 546* 541*	34	Impaired	Compromised (see Bagley 0.1)	
<i>Jimmycomelately 0.1</i>		<i>JCL upstream of Old Blyn Hwy; old site pre 2004</i>				
9/30/2000	42 ?	1450 -- --	34	Impaired	NA: Stream has been restored and no longer runs through this site.	
9/29/2001	313	561 2637 1658	40	Compromised		
10/10/2002	1285	557* 534* 551*	44	Compromised		
10/5/2003	3669 ?	971 1618 3082	36	Compromised		
<i>Jimmycomelately 0.2</i>		<i>JCL u/s of Hwy 101; old site pre 2004</i>				
10/5/2000	43	454 568 --	36	Compromised	NA: Stream has been restored and no longer runs through this site.	
10/10/2002	1286	564* 542* 543*	38	Compromised		
<i>Jimmycomelately 0.2a</i>		<i>JCL u/s of Hwy 101 - restored channel</i>				
9/25/2004	4898	596 257 289	16	Critically impaired	Impaired (but note that stream was re-meandered to this site in 2004)	
9/25/2005	6047	136 69 41	16	Critically impaired		
<i>Jimmycomelately 0.4</i>		<i>JCL d/s of E spur rd. @ end of Correa Rd.</i>				
10/22/2004	4952	75 9 83	24	Highly impaired	Impaired (but note that stream was re-meandered to this site in 2004)	
9/25/2005	6134	476 393 --	34	Impaired		
<i>Jimmycomelately 0.6</i>		<i>JCL @ Corriea Rd</i>				
10/1/2001	307	466 285 290	36	Compromised	Compromised (Impaired score seems to be an anomaly with Healthy score the following year)	
10/11/2002	1287	368 305 622	34	Impaired		
10/5/2003	3670	688 1234 1680	48	Healthy		
10/16/2004	4914	1262 1582 1267	44	Compromised		

<i>Jimmycomelately 0.8</i>		<i>JCL @ Woods Rd</i>					
10/11/2002	1288	1025	1168	944	44	Compromised	Compromised (see Bagley 0.0)
10/3/2005	6130	289	370	--	42	Compromised	
<i>Johnson 0.0</i>		<i>Johnson u/s of Marina</i>					
10/9/1999	283	487*	534	1186	40	Compromised	Compromised
<i>Johnson 0.6</i>		<i>Johnson d/s of Hwy 101</i>					
10/9/1999	284	733	651	707	40	Compromised	Compromised
<i>Lake 0.6</i>		<i>Lake ~300' u/s of Hwy 101</i>					
9/18/2000	58 ?	14	30	28	16	Critically impaired	Stream goes dry in summer; if this is natural, don't call Impaired;
9/19/2001	317	619	533	--	22	Highly impaired	should we try a sample in the spring?
<i>Lake trib @ LB 6.2</i>		<i>Lake (trib) u/s of Lake Pleasant</i>					
9/19/2000	120	1331	1046	1684	48	Healthy	Healthy
9/15/2001	302	1785	2102	564	48	Healthy	
10/13/2002	1296	536	980	339	46	Healthy	
<i>Lees 0.1</i>		<i>Lees d/s of E. Hidden Way</i>					
10/7/2000	55	518	974	631	32	Impaired	Compromised (but note: 2006 data is not included with data sent to DOE for 2006 Water Quality Report)
9/21/2002	1310	428	337	--	34	Impaired	
9/29/2006	7191	489	545*	545*	38	Compromised	
<i>Lees 0.6</i>		<i>Lees d/s of Hwy 101</i>					
10/14/1999	220	319	255	--	38	Compromised	Compromised
10/11/2000	56	388	1000	--	42	Compromised	
10/6/2001	239	308	367	500	42	Compromised	
9/20/2003	3663	1840	2287	2318	46	Healthy	
10/10/2006	7195	382	490*	523*	38	Compromised	
<i>Lees 0.8</i>		<i>Lees d/s of Leighland Av</i>					
10/14/1999	221	609	703	639	36	Compromised	Compromised
10/12/2000	57	1650	1147*	949	40	Compromised	
10/6/2001	240	2503	1559	2435	40	Compromised	
9/21/2002	1311	635	966	635	36	Compromised	
<i>Lyre 0.8a</i>		<i>Lower Lyre Bugs 2004</i>					
10/11/2004	6309	517*	568*	583*	34	Impaired	Compromised (see Bagley 0.0)
<i>Lyre 4.2</i>		<i>Upper Lyre Bugs 2004</i>					
10/13/2004	6307	448	585*	594*	30	Impaired	Impaired (5 below the borderline)
<i>Mink Lake 0.0</i>		<i>Mink Lake Creek jab Lovers Lane Trail Bridge ~150' u/s of Mouth @ Sol Duc</i>					
10/3/2006	7189	514*	508*	527*	36	Compromised	Compromised (in Natl. Park, but poor canopy & substrate in vicinity)
<i>Morse 0.3</i>		<i>Morse @ 4 Seasons Ranch</i>					
10/1/1999	259	694	913	1116	32	Impaired	Compromised (but with great variability between years—why?)
9/15/2000	71	716*	621*	5445	38	Compromised	
9/15/2001	311	3176	671	880	28	Impaired	
9/28/2002	1321	627*	561*	628*	40	Compromised	
10/4/2003	3941 ?	119	126	85	34	Impaired	
<i>Morse 1.1</i>		<i>Morse u/s of Discovery Trail bridge</i>					
10/13/1998	6017	640	306	264	32	Impaired	Compromised (range of values all within borderline area)
10/1/1999	280	1455	525	--	36	Compromised	
9/28/2002	1366	823	517	658	32	Impaired	
<i>Morse 1.5</i>		<i>Morse @ N. end of 4 Seasons Park</i>					
10/11/2005	6093	543*	515*	533*	38	Compromised	Compromised
<i>Morse 1.8</i>		<i>Morse @ 4 Seasons Park</i>					
10/3/1999	281	437	402	342	34	Impaired	Compromised
9/18/2000	72	2355	1036	1214	36	Compromised	
9/15/2001	310	784	463	--	38	Compromised	
<i>Morse 4.0</i>		<i>Morse @ power plant</i>					
10/11/2005	6094	523*	510	--	36	Compromised	Compromised
<i>Morse 5.6</i>		<i>Morse 100 ft d/s of PUD bridge</i>					
10/16/2004	4928	3971	605*	546*	42	Compromised	Compromised

<i>Peabody 0.2</i>		<i>Peabody @ 2nd St</i>				
9/24/1998	6019	478	986	336	14	Critically impaired Impaired (see Bell 0.1)
10/17/1999	279	402	482	651	14	Critically impaired
<i>Peabody 0.5</i>		<i>Peabody u/s of Peabody St</i>				
9/24/1998	6020	465	--	--	14	Critically impaired Impaired (see Bell 0.1)
9/15/1999	225	384	593	814	16	Critically impaired
<i>Peabody 1.0</i>		<i>Peabody @ 9th St</i>				
9/28/1998	6021	359	413	--	10	Critically impaired Impaired (see Bell 0.1)
10/17/1999	278	426	472	--	18	Highly impaired
<i>Peabody 1.4</i>		<i>Peabody @ ONP Visitor Ctr</i>				
11/1/2000	39	577	656	--	48	Healthy Healthy
<i>Pysht 4.2</i>		<i>Lower Pysht2 Bugs 2004</i>				
10/6/2004	6317	221	203	161	32	Impaired Compromised (see Bagley 0.1)
<i>Pysht 6.5</i>		<i>Lower Pysht1 Bugs 2004</i>				
10/6/2004	6313	586*	567*	567*	30	Impaired Impaired
<i>Pysht 9.5</i>		<i>Upper Pysht Bugs 2004</i>				
10/6/2004	6314	559*	563*	633*	44	Compromised Compromised (see Bagley 0.0)
<i>Salt 1.5</i>		<i>Salt @ upper junction of Camp Hayden Rd & CHPark Rd</i>				
10/2/2002	1319	574	750	794	38	Compromised Compromised
10/3/2003	3930	1671	824	1359	38	Compromised
10/2/2004	4906	1790	1859	1024	36	Compromised
<i>Salt 4.2</i>		<i>Salt ~150' d/s of WDFW #19-0010</i>				
10/2/2002	1317	600*	605*	718	40	Compromised Compromised
10/3/2003	3931	1915	2231	1589	48	Healthy
10/1/2004	4908	725	1776	1598	44	Compromised
<i>Salt 5.4</i>		<i>Salt @ end of Salt Creek Rd., d/s of WDFW #19-0014</i>				
10/2/2002	1318	832	346	545*	38	Compromised Compromised
10/3/2005	6118	547*	436	--	44	Compromised
<i>Salt 6.4</i>		<i>Salt 750 ft below 585 Wasankari Rd.</i>				
10/3/2004	4905	1477	1843	1323	48	Healthy Healthy
<i>Sekiu 2.5</i>		<i>Lower Sekiu Bugs 2004</i>				
10/7/2004	6301	494	484	--	40	Compromised Compromised
<i>Sekiu 6.9</i>		<i>Upper Sekiu Bugs 2004</i>				
10/6/2004	6303	556*	578*	569*	42	Compromised Compromised (see Bagley 0.0)
<i>Siebert 0.6</i>		<i>Siebert @ 225 Gehrke Rd</i>				
10/16/2000	40	580	957	998	40	Compromised Compromised (apparent downward trend may be due to restabilization of site subsequent to restoration work performed there in 2005; need to resample in 2007)
9/27/2001	241	1311	580	2165	36	Compromised
10/7/2002	1122	707	1107	561*	40	Compromised
10/8/2003	3942	1437	603	1199	42	Compromised
10/1/2004	4910	1193	783	1219	42	Compromised
10/7/2005	6121	520*	512*	506*	38	Compromised
10/9/2006	7218	434	509*	554*	34	Impaired
<i>Siebert 3.0</i>		<i>Siebert @ Miletich Lane</i>				
10/16/2000	41	982	639	845	42	Compromised Compromised
9/27/2001	243	980	1101	411	40	Compromised
10/7/2002	1123	703	1053	584	40	Compromised
10/15/2003	3943	1548	1385	759	44	Compromised
<i>Siebert 3.8</i>		<i>Siebert @ Conner Road</i>				
9/24/2001	244	584	726	444	42	Compromised Compromised (see Caveat 1b)
10/17/2002	1128	919	861	1041	44	Compromised
10/9/2003	3927	412	490	1282	46	Healthy
<i>Siebert WF 2.3</i>		<i>Siebert WF just inside ONP</i>				
10/8/2002	1124	547	297	519	46	Healthy Healthy
10/13/2005	6107	456	354	425	48	Healthy
<i>Tumwater 0.1a</i>		<i>Tumwater @ 3rd St.</i>				
9/11/2004	4882 ?	127	134	81	30	Impaired No rating (single questionable sample)

<i>Valley 0.4</i>		<i>Valley @ 6th St, u/s of final culvert 220ft</i>						
10/15/2000	48	1037	1732	2273	28	<i>Impaired</i>	<i>Compromised (earliest score seems an anomaly, with two later scores in agreement)</i>	
10/14/2001	246	1204	988	1171	38	<i>Compromised</i>		
10/6/2002	1315	611	306	561	38	<i>Compromised</i>		
<i>Valley 0.7</i>		<i>Valley @ 12th St</i>						
10/2/1999	343	791	515	--	38	<i>Compromised</i>	<i>Compromised</i>	
<i>Valley 1.0</i>		<i>Valley @ "flatbed" bridge @ 14th St</i>						
10/12/2003	3944	4126	1081*	557*	44	<i>Compromised</i>	<i>Compromised</i>	
10/10/2004	4922	846*	827*	734*	42	<i>Compromised</i>		
10/9/2005	6137	514*	514*	511*	40	<i>Compromised</i>		
<i>Valley 1.2</i>		<i>Valley d/s of Hwy 101</i>						
10/2/1999	344	318	1686	1403	44	<i>Compromised</i>	<i>Compromised (see Bagley 0.0)</i>	
<i>Valley 2.2</i>		<i>Valley d/s of E Valley mouth</i>						
10/19/2000	50	1507	854	1302	48	<i>Healthy</i>	<i>Compromised (perhaps a trend, and note that stream is Healthy above Mill Creek confluence--see Valley 2.2a below)</i>	
10/14/2001	249	738	986	498	44	<i>Compromised</i>		
10/5/2002	1316	339	938	621*	44	<i>Compromised</i>		
10/14/2006	7205	516*	510*	542*	42	<i>Compromised</i>		
<i>Valley 2.2a</i>		<i>Valley Creek u/s of confluence w/Mill Creek @main side trail Xing</i>						
10/9/2005	6140	533*	543*	543*	46	<i>Healthy</i>	<i>Healthy</i>	
<i>W. Twin 0.3</i>		<i>Lower W. Twin Bugs 2004</i>						
10/13/2004	6299	373	531	622*	36	<i>Compromised</i>	<i>Compromised</i>	
<i>W. Twin 1.0</i>		<i>Upper W. Twin Bugs 2004</i>						
10/12/2004	6300	590*	352	441	46	<i>Healthy</i>	<i>Healthy</i>	