

Streamkeepers of Clallam County

Proposed Bioassessment Calls for Dept. of Ecology 2009 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 (mayflies/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):			
Alckee 0.1											
9/1/1998	7572	Quileute Tribe B-IBI	Alckee near mouth			571	461	538	48	Healthy	Healthy
Bagley 0.0											
10/7/2005	6123		Bagley ~200' u/s of mouth			533*	505*	504*	40	Compromised	Compromised
Bagley 0.1											
10/9/1999	337		Bagley ~400' u/s of mouth			927	409	--	36	Compromised	Compromised (accuracy range of a single score crosses the borderline)
Bagley 0.7											
10/11/2000	78		Bagley d/s of Discovery Trail bridge			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	36	Compromised				
10/9/2006	7200		506*	449	502*	42	Compromised				
Bagley 1.2											
10/9/1999	338		Bagley d/s of Hwy 101			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	32	Impaired				
Bagley 1.8											
10/9/1999	342		Bagley nr. S. Bagley Creek Rd			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				
Bagley 4.6											
10/14/2001	298		Bagley @ Merrill Estates			1027	1250	1545	44	Compromised	Compromised (but watch downward trend)
10/15/2002	1121		647	944	535	38	Compromised				
10/15/2007	7530		692*	768*	535*	34	Impaired				
Bagley 6.2											
10/10/2005	6125		Bagley @Township Line Rd			454	383	--	38	Compromised	Compromised
Barnes 0.0											
10/6/2001	1722		Barnes Creek mouth			510	447	--	38	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	32	Impaired				
10/10/2003	4643		268	396	335	36	Compromised				
Barnes 0.1											
10/10/2005	6096		Barnes ~350' from mouth			504*	503*	505*	36	Compromised	Compromised (This site may be influenced by Hwy. 101.)
Barnes 0.9											
10/11/2005	6091		Barnes u/s of Marymere trail bridge			502*	509*	511*	44	Compromised	Compromised (May be due to large amount of fine sediment in system.)
Bear (Salt) 0.0											
10/3/2005	6115		Bear @ confluence w/Salt Cr.			520*	526*	506	42	Compromised	Compromised (see Bagley 0.0)
Bear 0.1											
9/19/2000	60		Bear u/s of Hwy 101			828	907	760	44	Compromised	Healthy
9/16/2001	314		945	1049	788	46	Healthy				
10/13/2002	1289		906	759	951	46	Healthy				
Bear 2.5											
9/19/2000	61		Bear @ Misty Creek Lane			1909	1573	2015	42	Compromised	Healthy (see Caveats 3 & 4)
9/16/2001	303		2203	1223	2761	46	Healthy				
Bear (Sol Duc) 4.8											
9/1/1998	7577	Quileute Tribe B-IBI	Bear @~200ft u/s of confluence w/Bear SF			565	568	646	46	Healthy	Healthy
Bear 5.1											
9/20/2000	64		Bear @powerlines on West Twin Rd			613*	676*	845*	44	Compromised	Healthy (see Caveats 3 & 4)
9/15/2001	316		1251	1330	2199	42	Compromised				
10/12/2002	1293		1992	668*	703*	46	Healthy				
10/16/2006	7241		523	511	545	46	Healthy				

Bear SF 0.2

9/20/2000 63
 9/15/2001 315
 10/12/2002 1290

Bear (Sol Duc) SF

9/2/1997 7544 Quileute Tribe B-IBI ?
 9/10/1997 7545 Quileute Tribe B-IBI
 9/1/1998 7576 Quileute Tribe B-IBI

Bell 0.1

10/10/1999 461
 10/1/2000 44
 9/30/2001 312 ?
 10/11/2005 6127

Bell 0.5

10/10/1999 223

Bell 0.8

10/26/2002 1303
 10/17/2003 3948

Bell 1.8

10/4/2000 45

Cassalery 0.5

10/10/1999 462
 9/22/2000 81
 9/22/2001 305

Cassalery 0.6

10/1/2002 1312

Cassalery 1.1

9/25/1999 276
 9/22/2000 82
 10/1/2002 1314

Cassalery 1.6

9/25/1999 277
 10/13/2000 83
 9/22/2001 306 ?
 10/1/2002 1313

Clallam 2.4

10/5/2004 6215

Clallam 2.4

9/27/2007 7496

Clallam 5.4

10/5/2004 6298

Deep 0.9

10/11/2004 6304

Deep 1.5

10/13/2004 6312

Dry 0.8

10/3/2007 7512

Dry 2.2

9/25/2005 6141

Dungeness 0.7

10/12/2004 4916
 9/27/2006 7227

Dungeness 03.0

9/26/2007 7518

Bear SF d/s of West Twin Rd

612* 588* 665* 44
 1804 1412 1268 48
 866 1218 1293 48

Bear SF 100ft u/s of West Twin Rd bridge

352 485 -- 42
 428 344 328 46
 507 532 657 50

Bell ~320 ft. d/s of Schmuck Rd

1487 854 1320 18
 255 437 482 16
 551 354 463 12
 344 537* 460 10

Bell @ Sequim treatment plant

1521 564 1910 28

Bell @ Spath DOT site

563* 705 736* 16
 5132 352 4534 12

Bell u/s of Brown Rd

682 1063 987 20

Cassalery 300' d/s of Jamestown Rd

325 488 346 22
 425 570 667 18
 455 -- -- 24

Cassalery @ Jamestown Rd.

500 345 -- 18

Cassalery u/s of Taylor Ranch Rd

491 400 -- 16
 440 2994 1121 20
 278 448 501 18

Cassalery @ Clary Lane

479 618 -- 16
 696 1243 1272 26
 944 -- -- 14
 619 523 -- 16

Lower Clallam Bugs 2004

543* 582* 577* 34

Clallam R @ 390 Weel Rd

1383 356 974 36

Upper Clallam Bugs 2004

564* 569* 569* 44

Lower Deep Bugs 2004

317 284 571* 42

Upper Deep Bugs 2004

524 582* 388 46

Dry Cr d/s of fork at Kacee Way, u/s of falls

536* 550* 575* 20

Dry Creek @ 2844 W. Edgewood Dr.

515* 510* 514* 44

Dungeness d/s of Schoolhouse Bridge

1860 3009 1081 36
 518* 569* 513* 24

Dungeness @ Mary Wheeler County Park S. off Ward Rd. d/s of Woodcock Bridge

1275* 776* 678* 42

Compromised Healthy

Healthy

Healthy

Compromised Healthy

Healthy

Healthy

Highly impaired Impaired (how impaired doesn't

Critically impaired matter for terms of the 303(d) list)

Critically impaired

Critically impaired

Highly impaired Impaired (see Bell 0.1)

Critically impaired Impaired (see Bell 0.1)

Critically impaired

Highly impaired Impaired (see Bell 0.1)

Highly impaired Impaired (see Bell 0.1)

Highly impaired

Highly impaired

Highly impaired Impaired (see Bell 0.1)

Critically impaired Impaired (see Bell 0.1)

Highly impaired

Highly impaired

Highly impaired Impaired (see Bell 0.1)

Highly impaired

Critically impaired

Critically impaired

Impaired Compromised (see Bagley 0.1)

Compromised *same site as above?

Compromised Compromised (see Bagley 0.0)

Compromised Compromised (see Bagley 0.0)

Healthy Healthy

Highly impaired Impaired (see Bell 0.1)

Compromised Compromised (see Bagley 0.0)

Compromised Compromised (see Bagley 0.1)

Highly impaired

Compromised Compromised (see Bagley 0.0)

Dungeness 05.9

9/27/2005 6116
 9/27/2006 7228
 9/27/2007 7511

Dungeness 06.6a

10/14/2004 4917
 9/27/2007 7509

Dungeness 07.8

9/27/2005 6131 ?

Dungeness 11.6

10/14/2004 4915

Dungeness 15.7

9/30/2005 6143

E. Twin 1.2a

10/12/2004 6305

E. Twin 1.9a

10/12/2004 6306

Elk 1.9

10/16/2005 6051

Elk 2.9

10/17/2006 7240

Ennis 0.1

9/19/2000 73
 9/16/2001 308
 10/4/2002 1365
 10/5/2003 3672
 10/6/2007 7516

Ennis 1.4

9/19/2000 74
 9/16/2001 309
 10/3/2002 1320
 10/5/2003 3671 ?
 10/17/2004 4929
 10/6/2007 7519

Ennis 1.7

10/18/2004 4934
 10/6/2005 6099

Ennis 2.2

10/9/2007 7517

Ennis 6.6

10/21/2005 6092

Gray Wolf 1.0

10/10/2004 4923

Gray Wolf 0.9

10/1/2007 7510

Gunderson WF 0.6

9/1/1998 7580 Quileute Tribe B-IBI

Hoh Trib WDFW 20-0509 0.1

9/1/1998 7583

Hoko 18.0

10/7/2004 6310

Hoko 3.2a

10/4/2004 6302

Dungeness @ RR bridge

412 505* -- 42 Compromised
 509* 505* 512* 42 Compromised
 588* 659* 735* 36 Compromised

Dungeness rb side-channel u/s of Hwy 101

271 262 -- 36 Compromised
 508 525* 552* 34 Compromised

Dungeness @ #364 Meadows Development

635 531 -- 40 Compromised

Dungeness 0.2 mi d/s of USGS gage

323 288 664 34 Impaired

Dungeness d/s of Gray Wolf

504* 528* 511* 44 Compromised

Lower E. Twin Bugs 2004

508 581 --* 46 Healthy

Upper E. Twin Bugs 2004

635* 458 549* 42 Compromised

Elk Cr. @ Stagecoach Pass (lower end of purchase)

533* 479 503* 48 Healthy

Elk Creek trail d/s of Stringer Creek

511* 559* 544* 44 Compromised

Ennis @ PA treatment plant

314 278 -- 32 Impaired
 453 -- -- 30 Impaired
 109 46 61 32 Impaired
 49 102 40 26 Highly impaired
 431 611 -- 32 Impaired

Ennis @ Roosevelt MS

355 528 -- 32 Impaired
 155 94 168 36 Compromised
 78 190 172 32 Impaired
 110 47 18 30 Impaired
 842 513 410 36 Compromised
 445 639 857 38 Compromised

Ennis d/s of power lines (NOTE: site of restoration project completed in June 2004)

507 867 -- 32 Impaired
 115 84 212 32 Impaired

Ennis @1603/5 Golf Course Rd

352 620 351 42 Compromised

Ennis @ Heart of the Hills Campground off Loop A

511* 528* 298 42 Compromised

Gray Wolf @ bridge 1 mi. u/s of Dung Forks

892 886 1043 42 Compromised

Gray Wolf 728' d/s of bridge

555* 597* 535* 44 Compromised

Gunderson WF ~1250' N of DNR rd

499 693 516 48 Healthy

Hoh Trib WDFW 20-0509 0.1

459* 480* 518* 44 Compromised

Upper Hoko2 Bugs 2004

619* 577* 590* 40 Compromised

Lower Hoko Bugs 2004

602* 337 521 30 Impaired

Compromised (see Bagley 0.0)

Compromised

No rating (single questionable sample)

Compromised (see Bagley 0.1)

Compromised (see Bagley 0.0)

Healthy

Compromised (see Bagley 0.0)

Healthy

Compromised (see Bagley 0.0)

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)

Caution: 1 or 2 original rep counts <250

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 2007, is Compromised)

Impaired (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)

Compromised (see Bagley 0.0)

Compromised (see Bagley 0.0)

Compromised (see Bagley 0.0)

Compromised (see Bagley 0.0)

Healthy

Compromised

Compromised

Impaired

Hoko 9.5

10/5/2004 6311

Hughes 0.0

10/3/2006 7190

Indian 0.3

10/11/2006 7206

Indian 4.5

9/26/2007 7490

Indian 4.9

10/11/2006 7209

9/26/2007 7491

Jackson 0.1

9/1/1998 7584

Jimmycomelately 0.1

9/30/2000 42 ?

9/29/2001 313

10/10/2002 1285

10/5/2003 3669 ?

Jimmycomelately 0.2

10/5/2000 43

10/10/2002 1286

Jimmycomelately 0.2a

9/25/2004 4898

9/25/2005 6047

10/4/2006 7229

10/7/2007 7524

Jimmycomelately 0.4

10/22/2004 4952

9/25/2005 6134

10/4/2006 7231

Jimmycomelately 0.6

10/1/2001 307

10/11/2002 1287

10/5/2003 3670

10/16/2004 4914

Jimmycomelately 0.8

10/11/2002 1288

10/3/2005 6130

10/10/2007 7525

Johnson 0.0

10/9/1999 283

Johnson 0.6

10/9/1999 284

Johnson 2.0

10/10/2007 7526

Lake 0.6

9/18/2000 58 ?

9/19/2001 317

Lake 4.5

9/9/1997 7539 Quileute Tribe B-IBI ?

9/1/1998 7571 Quileute Tribe B-IBI

Lake 5.5

10/5/2007 7513

Lake trib @ LB 6.2

9/19/2000 120

9/15/2001 302

10/13/2002 1296

Lees 0.1

10/7/2000 55

Upper Hoko Bugs 2004

594* 574* 624* 38 Compromised Compromised

Hughes Creek 150' u/s of mouth

526* 527* 552* 48 Healthy Healthy

Indian 23' u/s of depth gauge @ Lk Aldwell Rd bridge

508* 535* 519* 46 Healthy Healthy

Indian Cr u/s of Joyce Access Rd Bridge

862* 648* 540* 38 Compromised Compromised (see Bagley 0.1)

Indian Crk d/s of 101 bridge near South Shore Rd.

514* 546* 541* 34 Impaired Impaired

759* 623* 615* 26 Highly impaired

Jackson Cr ~400' from mouth

466 514 528 48 Healthy Healthy

JCL upstream of Old Blyn Hwy; old site pre 2004

1450 -- -- 34 Impaired NA: Stream has been restored and

561 2637 1658 38 Compromised no longer runs through this site.

557* 534* 551* 44 Compromised

971 1618 3082 36 Compromised

JCL u/s of Hwy 101; old site pre 2004

454 568 -- 36 Compromised NA: Stream has been restored and

564* 542* 543* 38 Compromised no longer runs through this site.

JCL u/s of Hwy 101 - restored channel

596 257 289 14 Critically impaired Impaired (but note that stream was

136 69 41 18 Critically impaired re-meandered to this site in 2004)

547* 506* 540* 38 Compromised

276 271 -- 32 Impaired Caution:1 or 2 original rep counts <250

JCL d/s of E spur rd. @ end of Correa Rd.

75 9 83 24 Highly impaired Impaired (but note that stream was

476 393 -- 34 Impaired re-meandered to this site in 2004)

523* 508* -- 40 Compromised Caution:1 or 2 original rep counts <250

JCL @ Corriea Rd

466 285 290 36 Compromised Compromised (Impaired score seems

368 305 622 32 Impaired to be an anomaly with Healthy score

688 1234 1680 48 Healthy the following year)

1262 1582 1267 44 Compromised

JCL @ Woods Rd

1025 1168 944 42 Compromised Compromised (see Bagley 0.0)

289 370 -- 44 Compromised

727* 656* 683* 42 Compromised

Johnson u/s of Marina

487* 534 1186 40 Compromised Compromised

Johnson d/s of Hwy 101

733 651 707 42 Compromised Compromised

Johnson u/s of Smith Lake trib WDFW #0302

585* 606* 664* 44 Compromised Compromised

Lake ~300' u/s of Hwy 101

14 30 28 16 Critically impaired Stream goes dry in summer; if

619 533 -- 22 Highly impaired this is natural, don't call Impaired;

should we try a sample in the spring?

Lake Creek ~0.2 mi u/s of Lake Pleasant

517 323 429 36 Compromised Compromised

614 498 570 42 Compromised

Lake Creek ~1 mi u/s of L Pleasant

542* 557* 486 40 Compromised Compromised (see Bagley 0.0)

Lake (trib) u/s of Lake Pleasant

1331 1046 1684 48 Healthy Healthy

1785 2102 564 48 Healthy

536 980 339 46 Healthy

Lees d/s of E. Hidden Way

518 974 631 30 Impaired Compromised (but note: 2006 data is

9/21/2002	1310	428	337	--	34	Impaired	not included with data sent to DOE for 2006 Water Quality Report)
9/29/2006	7191	489	545*	545*	38	Compromised	
Lees 0.6		Lees d/s of Hwy 101					
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	
Lees 0.7		Lees @end of S. Bay View Ave d/s of private bridge					
10/15/2007	7515	676	576*	550*	38	Compromised	Compromised (see Bagley 0.0)
Lees 0.8		Lees d/s of Leighland Av					
10/14/1999	221	609	703	639	36	Compromised	Compromised
10/12/2000	57	1650	1147*	949	36	Compromised	
10/6/2001	240	2503	1559	2435	40	Compromised	
9/21/2002	1311	635	966	635	36	Compromised	
Lost 0.0		Lost Cr ~250' from mouth					
9/1/1998	7582	601	528	580	48	Healthy	Healthy
Lyre 0.8		Lyre @ end of E. Lyre River Rd					
9/27/2007	7495	770*	713*	536*	30	Impaired	Compromised (see Bagley 0.0)
Lyre 0.8a		Lower Lyre Bugs 2004					
10/11/2004	6309	517*	568*	583*	32	Impaired	Compromised (see Bagley 0.0)
Lyre 4.2		Upper Lyre Bugs 2004					
10/13/2004	6307	448	585*	594*	32	Impaired	Impaired (5 below the borderline)
Mink Lake 0.0		Mink Lake Creek jab Lovers Lane Trail Bridge ~150' u/s of Mouth @ Sol Duc					
10/3/2006	7189	514*	508*	527*	34	Compromised	Compromised (in Natl. Park, but poor canopy & substrate in vicinity)
Morse 0.3		Morse @ 4 Seasons Ranch					
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	
Morse 1.1		Morse u/s of Discovery Trail bridge					
10/13/1998	6017	640	306	264	30	Impaired	Compromised (range of values all within borderline area)
10/1/1999	280	1455	525	--	36	Compromised	
9/28/2002	1366	823	517	658	34	Impaired	
10/5/2007	7522	521*	720*	669*	44	Compromised	
Morse 1.5		Morse @ N. end of 4 Seasons Park					
10/11/2005	6093	543*	515*	533*	38	Compromised	Compromised
Morse 1.7		Morse approx 500' d/s of 1.8					
10/7/2006	7212	532*	512*	526*	38	Compromised	Compromised (see Bagley 0.0)
Morse 1.8		Morse @ 4 Seasons Park					
10/3/1999	281	437	402	342	34	Impaired	Compromised (see Caveat 1a & 4)
9/18/2000	72	2355	1036	1214	34	Impaired	
9/15/2001	310	784	463	--	40	Compromised	
Morse 4.0		Morse @ power plant					
10/11/2005	6094	523*	510	--	36	Compromised	Compromised
Morse 5.6		Morse 100 ft d/s of PUD bridge					
10/16/2004	4928	3971	605*	546*	42	Compromised	Compromised
Morse 5.6a		Morse 100 ft u/s of PUD bridge					
10/6/2006	7226	529*	510*	336	38	Compromised	Compromised
Peabody 0.2		Peabody @ 2nd St					
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	
Peabody 0.5		Peabody u/s of Peabody St					
9/24/1998	6020	465	--	--	16	Critically impaired	Impaired (see Bell 0.1)
9/15/1999	225	384	593	814	20	Highly impaired	
Peabody 1.0		Peabody @ 9th St					
9/28/1998	6021	359	413	--	14	Critically impaired	Impaired (see Bell 0.1)

10/17/1999	278		426	472	--	18	Highly impaired	
Peabody 1.4			Peabody @ ONP Visitor Ctr					
11/1/2000	39		577	656	--	48	Healthy	Healthy
Pysht 4.2			Lower Pysht2 Bugs 2004					
10/6/2004	6317		221	203	161	32	Impaired	Compromised (see Bagley 0.1)
Pysht 6.5			Lower Pysht1 Bugs 2004					
10/6/2004	6313		586*	567*	567*	32	Impaired	Compromised (see Bagley 0.1)
Pysht 9.5			Upper Pysht Bugs 2004					
10/6/2004	6314		559*	563*	633*	44	Compromised	Compromised (see Bagley 0.0)
Salt 1.5			Salt @ upper junction of Camp Hayden Rd & CHPark Rd					
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	
10/8/2006	7216		536*	548*	536*	38	Compromised	
Salt 4.2			Salt ~150' d/s of WDFW #19-0010					
10/2/2002	1317		600*	605*	718	38	Compromised	Compromised
10/3/2003	3931		1915	2231	1589	48	Healthy	
10/1/2004	4908		725	1776	1598	44	Compromised	
10/8/2006	7217		533*	543*	517*	42	Compromised	
Salt 5.4			Salt @ end of Salt Creek Rd., d/s of WDFW #19-0014					
10/2/2002	1318		832	346	545*	38	Compromised	Compromised
10/3/2005	6118		547*	436	--	44	Compromised	
Salt 6.4			Salt 750 ft below 585 Wasankari Rd.					
10/3/2004	4905		1477	1843	1323	48	Healthy	Healthy
Sekiu 2.5			Lower Sekiu Bugs 2004					
10/7/2004	6301		494	484	--	40	Compromised	Compromised
Sekiu 6.9			Upper Sekiu Bugs 2004					
10/6/2004	6303		556*	578*	569*	42	Compromised	Compromised (see Bagley 0.0)
Shuwah 0.1			Shuwah ~500' from mouth					
9/1/1998	7581	Quileute Tribe B-IBI	565	606	--	48	Healthy	Healthy
Siebert 0.6			Siebert @ 225 Gehrke Rd					
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; 2007sample shows improvement)
9/27/2001	241		1311	580	2165	34	Impaired	
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	40	Compromised	
10/7/2005	6121		520*	512*	506*	36	Compromised	
10/9/2006	7218		434	509*	554*	34	Impaired	
9/30/2007	7487		784*	104	851*	42	Compromised	
Siebert 3.0			Siebert @ Miletich Lane					
10/16/2000	41		982	639	845	40	Compromised	Compromised
9/27/2001	243		980	1101	411	38	Compromised	
10/7/2002	1123		703	1053	584	40	Compromised	
10/15/2003	3943		1548	1385	759	42	Compromised	
Siebert 3.8			Siebert @ Conner Road					
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	48	Healthy	
Siebert WF 2.3			Siebert WF just inside ONP					
10/8/2002	1124		547	297	519	46	Healthy	Healthy
10/13/2005	6107		456	354	425	48	Healthy	
Sitkum 0.0			Sitkum @ mouth					
9/1/1998	7575		588	554	670	40	Compromised	Compromised
Skunk 0.1			Skunk ~500ft u/s of confluence with E. Fork Dickey					
9/1/1998	7578		505	438	767	32	Impaired	Compromised (see Bagley 0.1)
Sol Duc SF 0.0			Sol Duc S. Fork @ mouth					
9/1/1998	7573	Quileute Tribe B-IBI	552	522	517	44	Compromised	Compromised
Thunder 0.8			Thunder creek ~100ft u/s of logging rd bridge crossing					

Site/Date Visit ID QC

9/1/1998 7579

Tom 0.0

9/1/1998 7574 Quileute Tribe B-IBI

Tumwater 0.1a

9/11/2004 4882 ?

9/22/2007 7485

Tumwater 4.4

9/22/2007 7486

Twin (Hoh) 0.1

9/1/1998 7586

Valley 0.4

10/15/2000 48

10/14/2001 246

10/6/2002 1315

Valley 0.7

10/2/1999 343

Valley 1.0

10/12/2003 3944

10/10/2004 4922

10/9/2005 6137

10/7/2007 7501

Valley 1.2

10/2/1999 344

Valley 2.2

10/19/2000 50

10/14/2001 249

10/5/2002 1316

10/14/2006 7205

Valley 2.2a

10/9/2005 6140

W. Twin 0.3

10/13/2004 6299

W. Twin 1.0

10/12/2004 6300

Revised replicate counts: B-IBI score

519 486 587

40

Rating

* Replicate subsampled.

Compromised

Tom @ mouth

509 403 346

46

Healthy

Healthy

Tumwater @ 3rd St.

127 134 81

30

Impaired

Compromised (see Bagley 0.0)

557* 387 657*

36

Compromised

Tumwater u/s of 3142 Black Diamond Rd

698 636 667

46

Healthy

Healthy

Twin Cr u/s of Hoh Valley Rd

467 594 522

46

Healthy

Healthy

Valley @ 6th St, u/s of final culvert 220ft

1037 1732 2273

28

Impaired

Compromised

1204 988 1171

34

Impaired

611 306 561

36

Compromised

Valley @ 12th St

791 515 --

40

Compromised

Compromised

Valley @ "flatbed" bridge @ 14th St

4126 1081* 557*

44

Compromised

Compromised

846* 827* 734*

40

Compromised

514* 514* 511*

38

Compromised

943* 645* 638*

42

Compromised

Valley d/s of Hwy 101

318 1686 1403

44

Compromised

Compromised (see Bagley 0.0)

Valley d/s of E Valley mouth

1507 854 1302

46

Healthy

Compromised (perhaps a trend,

738 986 498

44

Compromised

and note that stream is Healthy

339 938 621*

44

Compromised

above Mill Creek confluence--see

516* 510* 542*

42

Compromised

Valley 2.2a below)

Valley Creek u/s of confluence w/Mill Creek @main side trail Xing

533* 543* 543*

46

Healthy

Healthy

Lower W. Twin Bugs 2004

373 531 622*

38

Compromised

Compromised

Upper W. Twin Bugs 2004

590* 352 441

48

Healthy

Healthy