

# FISH PASSAGE CENTER

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## MEMORANDUM

TO: ISRP

*Michele DeHart*

FROM: Michele DeHart

DATE: August 23, 2002

RE: **Response to the ISRP comments on the Fish Passage Center  
Contract #199403300.**

Following is our response to ISRP and Action agencies comments regarding the Fish Passage Center Project # 19940330. The FPC, Smolt Monitoring Program #198712700, and Comparative Survival Study #199602000 are by design integrated with each other. For that reason many of the responses to specific ISRP review comments on the FPC project overlap and reiterate responses to ISRP comments on the SMP project. In fact prior to 1990 the SMP and FPC projects were one project. Bonneville Power Administration split the project into the FPC and SMP contracts for Administrative reasons.

### **Response to ISRP comments on the Fish Passage Center Proposal #199403300**

Note: ISRP comments are restated in this document and are numbered and set in italics to provide ease of identifying them. Since our response is lengthy, we will refer both to attached documents and documents that are readily available on the FPC website, also BPA's and PSMFC's websites are cited in our response in an effort to reduce the sheer volume of our response when documents are available on the web.

- 1. Methods must be attached to each task and provided in sufficient detail (or adequate summary and reference given to written protocols) to allow the review and ensure that they are documented for future use of data.*

The Fish Passage Center (FPC) maintains written documentation of the methods, procedures, and protocols used for the tasks of data management, data distribution, data quality assurance and quality control. The current methods, procedures, and protocols for these tasks can be found on-line in the document named [Fish Passage Center Procedures for Data Retrieval and Posting](#)

([http://www.fpc.org/fpc\\_docs/procedure\\_manual/procedures2002.doc](http://www.fpc.org/fpc_docs/procedure_manual/procedures2002.doc)) The *cover* for this document can be found on-line at ([http://www.fpc.org/fpc\\_docs/procedure\\_manual/cover.doc](http://www.fpc.org/fpc_docs/procedure_manual/cover.doc)). This document describes each task and describes the methods used for each task in sufficient detail to allow for review and future use of the data. There are descriptions of the methods and protocols used by FPC for routine daily tasks, weekly tasks, monthly tasks, and annual tasks contained in this document. The table of contents of this document provides a list of the tasks for which methods and protocols are described. The document is included as Attachment A.

To briefly summarize the contents of this document: it details the methodology and protocol used for each routine data collection, processing, and distribution task performed by FPC. The table of contents lists routine daily, weekly, monthly, and annual tasks. When acquiring data from outside agencies, generally speaking, FPC uses automated procedures that have been developed in-house since 1985. These data are printed out in hard copy and filed everyday as well as stored electronically in databases. These data are then validated against monthly and annual files and reports that are also acquired from the same outside agencies. Most of the methodology and protocols FPC uses to provide data sets such as SMP and GBT data are also described in this document. The rest of the methods and protocols FPC uses for SMP data are described in the document named [FPC32 Smolt Monitoring Program Remote Data Entry Program](ftp://ftp.fpc.org/fpc32/2002SmoltMonitoring3.3a.doc), which is found on-line at <ftp://ftp.fpc.org/fpc32/2002SmoltMonitoring3.3a.doc>. The rest of the methods and protocols FPC uses for GBT data are described in a document named [2002 GBT Monitoring Protocol for Juvenile Salmonids](ftp://ftp.fpc.org/gbtprogram/GBTMonProto2002v2.doc), found on-line at: <ftp://ftp.fpc.org/gbtprogram/GBTMonProto2002v2.doc>. The references given here to written data protocols and methods will allow them to be reviewed and ensures that they are documented for future use of data.

**2. Results and plans for monitoring and evaluation of this project must be given. It is not appropriate for one of the most quantitative projects to not have a quantitative monitoring and evaluation plan for itself.**

The Fish Passage Center project activities are monitored and evaluated at every level in terms of output and outcome. That is, in terms of output, the data acquired and generated and distributed, reports, analysis and in terms of outcome, or the management applications of these data. Evaluation and monitoring occurs relative to data acquisition, accuracy of distributed data, public review of procedures, data and analysis, user survey, is carried out at several levels by the FPC staff. Monitoring and evaluation of the SMP is accomplished through the activities of the FPC.

**Outside Independent Review**

The FPC has been evaluated by outside independent auditors to assure that data is accurately presented. An outside auditor, *Symonds, Evans, & Larson, P.C. Certified Public Accountants*, audited the FPC SMP database in 1997 to determine its accuracy. FPC's SMP database is the only database in the region to have undergone an outside audit for accuracy. Recommendations were made by this auditor and incorporated into the methods, procedures and protocols used to collect, validate, and distribute SMP data. The results of this outside audit are attached to this document as Attachment B.

### **ESA Section 10 permit review**

Quantitative monitoring and evaluation of FPC is ongoing with the quantitative monitoring and evaluation required for ESA section 10 permit compliance. Quantitative monitoring and evaluation of ESA listed species that are “taken” and handled by remote SMP and GBT staff is a requirement of the FPC section 10 ESA permit, and these data are reported to NMFS during and after each migration season. Any unusual mortality or unusual condition in the observed fish is evaluated and properly acted upon. An example of such a memo is attached to this document as Attachment C. The FPC is the Section 10 ESA permit applicant and for the SMP and CSS projects. The projects are reviewed in the public review process for section 10 permits. The FPC responds to comments on sampling design and sampling and handling protocols. An annual report is submitted to NMFS, which presents the FPC compliance with the Section 10 permit for sampling and handling for the SMP sites.

### **Quality Assurance/Quality Control procedures at FPC**

Quantitative monitoring and evaluation occurs in the QA/QC procedures for all SMP data collected and distributed by FPC, which is described in the [FPC32 Smolt Monitoring Program Remote Data Entry Program](#) manual, found on-line at <ftp://ftp.fpc.org/fpc32/2002SmoltMonitoring3.3a.doc>. More SMP QA/QC procedures are to be found in [Fish Passage Center Procedures for Data Retrieval and Posting](#), which is found on-line at [http://www.fpc.org/fpc\\_docs/procedure\\_manual/procedures2002.doc](http://www.fpc.org/fpc_docs/procedure_manual/procedures2002.doc). Generally, electronic SMP data is quantitatively validated against the written hand-logs of SMP data using the monitoring and evaluation procedures described in these two manuals. Every week, spreadsheets of all SMP data collected YTD are sent from FPC to each SMP site for validation by remote SMP staff. Twice a year, the error rate at each SMP site and for the overall SMP program are quantitatively measured and evaluated. An “Error-Rate Memo” is published and sent to all SMP remote staff describing the findings. If any corrective actions or recommendations are required, they are taken. An example of the “Error-Rate Memo” is attached to this document as Attachment D. Quantitative monitoring and evaluation of GBT data is described in a document named [2002 GBT Monitoring Protocol for Juvenile Salmonids](#), found on-line at <ftp://ftp.fpc.org/gbtprogram/GBTMonProto2002v2.doc>.

### **User Surveys**

User surveys monitor the output and outcome elements of the FPC. Quantitative monitoring and evaluation of FPC takes place bi-weekly, in a customer survey and analysis. All web traffic and all data requests of the FPC web site are compiled, summarized and analyzed. A quantitative analysis report is created, evaluated, and stored electronically and printed on paper every two weeks. An example of this report is attached here as Attachment E.

### **Validating assumptions of derived indices**

Quantitative monitoring and evaluation of FPC takes place on is in-season monitoring and evaluation of key derived quantities such as the Passage Index. An example of this level of quantitative monitoring and evaluation can be found on-line at the FPC web site at [http://www.fpc.org/fpc\\_docs/LGRCH1\\_PassageIndex2002.pdf](http://www.fpc.org/fpc_docs/LGRCH1_PassageIndex2002.pdf) And at [http://www.fpc.org/fpc\\_docs/LGRST\\_PassageIndex2002.pdf](http://www.fpc.org/fpc_docs/LGRST_PassageIndex2002.pdf)

### **Monitoring Outputs and Outcomes**

FPC outputs and outcomes are monitored region wide. The FPC presently responds to two independent Boards, the NWPPC Oversight Board and the CBFWA Board of Directors, in terms of the applicability of outputs reports, analysis etc. to management questions region wide. The FPC activities are monitoring in terms of outputs by the CSS Oversight Committee and the Fish Passage Advisory Committee, again in terms of the application of outputs, to prevailing management questions or outcomes.

### ***3. The response should include a careful self-review evaluating the advantages and disadvantages of combining this with the CBFWA proposal #35033.***

Because project #35033 and the FPC project are both CBFWA sponsored and jointly developed proposals in terms of joint sponsorship by the state, federal and tribal fishery managers the functional melding of #35033, if it is funded, and the SMP is assured. Project #35033 will not immediately replace other M&E components such as the FPC. It is intended to build upon existing M&E projects such as the FPC. As M&E protocols are developed, they will be phased into projects, such as the FPC, which directly implement M&E activities. Because both the SMP and #35033 are projects developed and proposed jointly by CBFWA members, any recommendations from the project will become management criteria used to evaluate projects in the future and will be a basis for CBFWA funding recommendations to the NWPPC. Using project #35033 recommendations as criteria for future funding recommendations provides a very high probability that project recommendations will be implemented. As proposed project #35033 is intended to be overarching only in terms of providing a framework for organizing systemwide monitoring and evaluation information and recommending future M&E activities to inform decisions under the Fish and Wildlife Program and Biological Opinions. CBFWA as the project sponsors do not propose to formally bring other existing M&E projects under this project in the foreseeable future, but rather to coordinate activities with these other projects, and collaboratively improve the system wide information to aid decision-making. The proposal for a collaborative, system wide M&E program would provide a framework within which the above listed programs (CWT; StreamNet; Smolt Monitoring; FPC; CSS), or portions of these programs, could operate to monitor and evaluate the life cycle survival of listed and unlisted Columbia basin salmon, steelhead and other regionally important species.

As proposed by CBFWA, project #35033 does not propose to incorporate administration and implementation of these projects, or to dictate individual project M&E actions and protocols for existing M&E projects (StreamNet, Smolt Monitoring, PTAGIS, FPC, CSS). However, project #35033 does propose to integrate relevant Tier 1, 2 and 3 data from these component programs into a systemwide M&E program, and make recommendations for filling critical information gaps related to key management questions facing the region. The component projects will need to mesh functionally for a successful systemwide M&E program, which we propose would be best accomplished by close coordination of data collection and analytical activities, recommendations from the systemwide M&E Oversight Committee and Core Group in a collaborative process. ISRP peer review of major work products from the systemwide M&E project would also be beneficial as guidance to M&E activities of the component projects.

## Response to Action Agency/NMFS RME Group Comments on the Fish Passage Center Proposal

Note: RME Group comments are in italics followed by FPC response. Bolded comments are citations by the RME Group from the document “Mainstem/Systemwide Province Stock Status Program Summary”

*RME Group Statement: These comments are aimed at how the 199403300 Fish Passage Center proposal addresses RPA 180, which calls for the development of a program to determine population and environmental status while allowing ground-truthing of regional databases. The proposal includes some important elements in the service of the Biological Opinion RPA 180, specifically, the measurement of annual juvenile population abundance, survival and SAR’s. Useful guidelines for the proposal taken from document Mainstem/Systemwide Province Stock Status Program Summary, are given below. We suggest the sponsors address these guidelines in the proposal. Using these guidelines, we have commented on how the proposal 199403300 can be strengthened or clarified to help meet the RME needs specified in RPA 180.*

### **Guidelines: Tier 2 Population Status-Juvenile Life Stage**

- 1. Clearly identify the demographic unit (e.g. population, ESU, deme; wild/natural or hatchery origin) over which sampling will take place. Comparative Survival Study work appears to be aimed at spring/summer chinook juveniles of hatchery –origin, while the Smolt Monitoring Program is aimed at all salmon species.***

The Smolt Monitoring Program captures all species that occur above each dam or trap that operates within that basin. The table below lists those ESU’s that are present where sampling occurs. Our aim, is to minimize wild fish handling where those species are not specifically targeted either for monitoring or tagging. Generally, wild fish marking occurs at all of the SMP traps in the Snake River Basin. Presently the SMP traps targets Snake River spring/summer chinook and Snake River steelhead for marking both hatchery and wild origin fish.

In the Mid-Columbia, SMP marks fish at Rock Island Dam which include Upper Columbia River Spring Chinook and Upper Columbia River Steelhead, as well as Sockeye (including a combination of hatchery and wild fish of each species) for survival estimates to McNary Dam. Some fish are also PIT-tagged at specific hatcheries, these include Upper Columbia River Spring Chinook at Winthrop and Leavenworth NFH’s, Upper River Bright Fall Chinook at Wells, Ringold and Priest Rapids SFH’s.

NMFS ESU’s Potentially Sampled at SMP traps and dams in the Snake River Basin and Columbia River Basin

<b>Trap or Dam</b>	<b>Snake River ESU’s sampled (includes both Hatchery and Wild)</b>
Imnaha	Yearling Spring-Summer Chinook, Steelhead
Grande Ronde	Yearling Spring-Summer Chinook, Steelhead, Fall Chinook
Salmon River Trap	Yearling Spring-Summer Chinook, Steelhead, Sockeye
Snake River Trap	Yearling Spring-Summer Chinook, Steelhead, Sockeye, Fall Chinook
Lower Granite, Little	Yearling Spring-Summer Chinook, Steelhead, Sockeye, Fall

Goose, Lower Monumental and Ice Harbor dams	Chinook
	<b>Columbia River ESU's sampled (includes both Hatchery and Wild)</b>
Rock Island Dam	Upper Columbia River Spring Chinook, Upper Columbia River Steelhead,
McNary and John Day dams	All Snake ESU's, Upper Columbia River Spring Chinook, Upper Columbia River Steelhead, Mid-Columbia River Steelhead,
Bonneville Dam	All ESU's above as well as Lower Columbia River Chinook Salmon, Lower Columbia River Steelhead

The CSS proposal objective is to mark wild Snake River Spring/Summer Chinook at SMP traps and other locations in the Snake River Basin. Also, CSS would continue to mark hatchery yearling chinook (both Spring and Summer) at McCall, Rapid River, Dworshak and Pahsimeroi hatcheries, in the Snake River Basin. CSS further proposes tagging fish in the Mid-Columbia River, if approved these would include Upper Columbia River Steelhead from East Bank and Winthrop SFH's, and Upper Columbia River Yearling Chinook at Leavenworth and Winthrop NFH's. Please see the CSS proposal for more details about this proposed marking.

**2. As far as RPA 180 is concerned it is measures of population abundance, survival, and trend that are of interest.**

Fish Passage Center has developed responses for population abundance and hydrosystem survival estimates in the SMP proposal #198712700 response to comments. It includes detailed analysis of mark group sizes required for hydrosystem survival estimates as well as detailed discussions of trap efficiency estimates which are necessary to estimate abundance at the traps. Those responses are included below, though some of the detailed data included with the SMP responses were not included here but may be found in the SMP responses to questions #2 and #3 from the RME group.

**Hydrosystem Survival Estimates**

PIT-tag operations are a primary function of the SMP traps. Under SMP protocol trap personnel tag 600 fish per week of each target species and rearing type. Estimates using these sample sizes result in precise and reliable estimates from the traps to Lower Monumental Dam (see Tables 4a and 4b for examples of estimates from previous years tagging available in SMP proposal response). However, in order to estimate survival through the hydrosystem it would be necessary to increase tagging efforts so that adequate numbers of fish could be tagged to provide survival estimates with good precision.

Based on our experience in estimating hydrosystem survival, the estuary trawl does not provide a high enough collection efficiency to provide reliable estimates to Bonneville Dam without extraordinarily large numbers of tagged fish. We therefore considered survival estimates from tag location (above Lower Granite Dam) to John Day Dam for the 'hydrosystem survival' estimates.

We developed estimates of the number of fish necessary to tag for hydrosystem survival estimation by utilizing existing tag data. Our estimates were developed for the Salmon River Trap using PIT-tagged fish marked at Rapid River Hatchery, which is located above the trap on the Rapid River tributary. We chose the Salmon River Trap because it furthest from Lower Granite Dam and would require the highest sample sizes to achieve survival estimates with acceptable precision.

We determined sample sizes by randomly sub-sampling tags from the original tagging groups from the migration year (MY) 1999 and 2002. Using fish from CSS studies MY 1999 and 2002 (tagging coordinator id lrb, jlc) of which approximately 20% were removed for transportation, and 2002 NMFS tagging (tagging coordinator id lgg), of which fish were diverted back to river at transportation sites, we then estimated survivals for samples of between 600 and 10,000 tags.

We set as our criteria for precision a coefficient of variation (CV) of 10%. Initially, using the CSS tags from MY 1999, we selected groups of 600, 1000, 2000, 5000 and 10000 fish (Table 5 available in SMP proposal response). We then ran 4 additional replicates of sample size  $n = 5000$  and 5 replicates of  $n = 7500$  (tables 6 and 7 available in SMP proposal response). We repeated the  $n = 7500$  replicates using CSS marks from MY 2002 (Table 8 available in SMP proposal response). Finally, we ran 5 replicates of  $n = 5000$  using NMFS mark groups from MY 2002 (Table 9 available in SMP proposal response).

We determined that 5,000 to 7,500 tagged fish could yield an estimate with less than 10% CV depending on whether a portion of the tag group were either transported or all remained in river (see tables 4 to 8 available in SMP proposal response). Using a random sub-sample from the 126,000 yearling chinook tagged by NMFS at Rapid River Hatchery in 2002, we found that groups of 5,000 tagged fish, on average, yields a survival estimate with 10% CV. In these groups no fish were diverted for transportation studies (such as CSS). Using CSS tagged fish, from which a portion of the migrants are to be diverted to transportation, we determined that 7,500 tags would be necessary to provide an estimate with 10% coefficient of variation.

Our goal would be to mark blocks of fish on a weekly basis according to the sample sizes outlined above. We estimate the sites can tag between 1,000 and 2,000 fish per day during normal operations and assuming there are adequate numbers of fish in the river to capture. We could potentially tag 14,000 fish at each trap each week. Since peak outmigration of wild yearling chinook and wild steelhead occur at different times, with steelhead generally passing 2 to 3 weeks later than chinook, we could concentrate tagging on wild chinook early season, and switch emphasis to wild steelhead a few weeks later as their abundance increases. This would provide the best opportunity for providing multiple weekly blocks each season for estimating hydrosystem survival.

- 3. *The proposal would be made more relevant to RPA 180 if it had a thorough treatment of wild juveniles. The current FPC work is more relevant to hatchery born juveniles, and, according to the CSS report, it cannot presently be demonstrated that hatchery-born juvenile survivals can be used to reliably estimate wild born juvenile survivals.***

SMP tagging presently targets both hatchery and wild populations for survival and travel time estimation. Please see the response to comment #1 above for a list of ESU's potentially captured at SMP traps as well as the ESU's tagged at SMP traps. SMP marking is targeting Snake River Wild Yearling Chinook as part of efforts to increase tagging of these fish for CSS studies. As stated in the response to comment # 3 above, increased marking could be undertaken at SMP traps to directly address RPA 180 with regard to abundance estimates (see Trap Efficiency section of response to comment 2 above) and hydrosystem survival estimates (see Hydrosystem Survival section of response to comment 2 above)

- 4. *The method for constructing confidence intervals for wild fish juvenile numbers, adult numbers and in-river survivals should be explicitly treated in the proposal. What progress has been made in this endeavor? Do the confidence intervals indicate that estimates are valid.***

Presumably the comment is related to CSS proposal #199402000, since the SMP, routinely publishes confidence intervals for juvenile fish survival estimates using regionally excepted methods. And those methods were described in the SMP proposal. The CSS is in the process of developing confidence intervals for their SAR's and therefore, in the interest of thoroughness the following response related to the latest discussion of the appropriateness of the bootstrap methodology in the CSS proposal is included below.

The ISRP agrees that the bootstrap may be an appropriate procedure for estimation of variance, but they would like to see an evaluation of potential bias in SARs, ratios of SARs, and the delayed mortality index D. The CSS researchers realize that there is a potential for biases in the estimation process that should be evaluated. For example, estimating the number of smolts in the  $T_0$  (total transported in LGR equivalents) and  $C_1$  (in-river migrating smolts detected at a transportation site in LGR equivalents) categories requires unbiased estimates of survival from Lower Granite Dam tailrace to Lower Monumental Dam tailrace (this expands to McNary Dam tailrace in years that springtime transportation at McNary occurs). As part of the estimation process, we look for patterns in the survival estimates between these dams that may be reflective of potential biases. An unbiased estimate of the number of smolts in the  $C_0$  (in-river migrating smolts not detected at a transportation site in LGR equivalents) category requires unbiased survival estimates to produce results in LGR equivalents and an unbiased estimate of the population of PIT tagged fish at Lower Granite Dam (undetected and detected fish). Most of the variance and potential bias of the estimated number of smolts in Category  $C_0$  will arise from the estimation of population at Lower Granite Dam.

We ran simulations of the process of estimating the number of undetected wild fish at Lower Granite Dam, which included seasonally and randomly varying detection probabilities, smolt travel times, and survival rates. The results suggest that our proposed method results in very small (< 1%) bias in estimates of undetected smolts at Lower Granite, with 95% confidence



intervals well within  $\pm 10\%$  of the true value. This method must be used for wild fish, and can also be used with hatchery fish.

The ISRP recommends that we should develop maximum likelihood estimators and contrast them to our “ad hoc” estimators to determine which provides more accurate and precise parameter estimates. However, some of the quantities we already estimate, such as reach survival rates, in fact use maximum likelihood estimation, and the Lower Granite Dam population estimates are generated using components that are maximum likelihood estimators (*e.g.*, estimated collection efficiency). It is these estimates that determine the accuracy and precision of the estimated smolt numbers. These estimates in combination with the actual count data create the estimated number of smolts in each category. This is not an “ad hoc” approach as implied by the ISRP, but rather a set of computational formula based on the underlying probabilities of survival between dams, probability of collection at a dam, and probability of being transported once collected at a dam.

Where practicable, theoretical formulas for variance and/or profile confidence intervals from maximum likelihood estimation (MLE) will be employed with the original data to compare with estimates of variance and confidence intervals generated from the bootstrap program. Likelihood profiles for SARs (where the denominator is known with little error) can be generated using the binomial probability distribution and observed releases and recaptures. Variance for log-transformed ratios of SARs with denominators that are presumed to be known with little error [*e.g.*, SAR( $T_{LGR}$ ) and SAR( $C_1$ )] can be estimated with the formula derived from the ratio of two binomial random variables [see Equation (1) of Townsend and Skalski (1997)]. Additionally, MLE for ratios of these SARs will be performed using a likelihood formula similar to Equation (14) of Townsend and Skalski (1997), generating likelihood curves and support functions, which will give means and confidence intervals which can be compared to those generated from the bootstrap. If the bootstrap estimates of these relatively simple SAR and T/C estimates exhibit low bias and robust confidence intervals, it will provide assurance that more involved estimation procedures (*e.g.*, for D) are reasonable.

Because estimates of in-river survival from Lower Granite Dam tailrace to Bonneville Dam tailrace (LGRBON reach) have generally required some extrapolation of survival across sections of river for which no direct estimate is possible, there is the potential for biases to enter into the estimation of D. In years prior to 1998, there were greater chances of biases in these expansions because of the limited PIT tag detection capabilities at John Day and Bonneville dams, compared to 1998 and subsequent years. In 1998 and subsequent years the distance of river over which in-river survival has had to be extrapolated has been reduced, thus reducing the potential for biases in the LGRBON reach survival estimate. In the bootstrapping program, we have added a feature that allows the researcher to pre-select the number of reaches over which to use existing estimates of in-river survival and to choose among alternative methods of extrapolation. This will allow us to compare the sensitivity of the resulting LGRBON reach survival estimate to the amount of reach (distance) being extrapolated, and the method used.

5. *Clearly identify the spatial scale represented by each samples (e.g., reach, watershed, basin). Comments: The Smolt Monitoring Program (traps and dams) is clearly indicated in the proposal. For the Comparative Survival Study tagging sites, it was necessary to read reports on the FPC website. A link (or reference) should be supplied to this information, along with a table of the tagging sites.*

The table below shows the spatial scale (reach, watershed, basin) in standard EPA Hydrological Unit Codes for each CSS tagging site. The first four digits are the reach, the first six are the watershed, and the first eight are the basin. PTAGIS uses the exact same notation to denote spatial scale. This table can also be found on-line at

[http://www.fpc.org/Metadata/css\\_spatial\\_data.htm](http://www.fpc.org/Metadata/css_spatial_data.htm). The corresponding table for the SMP sites can be found on-line at [http://www.fpc.org/Metadata/FPC\\_SMP\\_Metadata.htm#spatial](http://www.fpc.org/Metadata/FPC_SMP_Metadata.htm#spatial).

Name	Reach Name	Hydrological Unit Codes - Cataloging Unit	Release Sites
Carson National Fish Hatchery	Middle Columbia - Hood	17070105	
Clearwater Hatchery	Lower North Fork Clearwater	17060308	Crooked River Pond; Powell Pond; Red River Pond
Dworshak National Fish Hatchery	Clearwater	17060306	
Kooskia National Fish Hatchery	Middle Fork Clearwater	17060304	
Leavenworth Hatchery	Wenatchee	17020011	
Lookingglass Hatchery	Upper Grande Ronde	17060104	Catherine Creek; Imnaha Acclimation Pond
McCall Hatchery	North Fork Payette	17050123	
Pahsimeroi Hatchery	Pahsimeroi	17060202	
Rapid River Hatchery	Little Salmon	17060210	

6. *Identify the performance measure or indicator that will be monitored (e.g. summer/winter juveniles, outmigrating smolts). If different methods are used to enumerate the same population, specify. Comments: The performance measures are described in the proposal. They include smolt to adult ratios, juvenile passage survivals, and relative abundance measures.*

We agree with the response to this comment. Performance measures are described in the proposals. For the CSS study SARs, D values, juvenile survivals, abundance estimates are the ultimate products of the program. For SMP, daily monitoring results, annual reports, tagging results are the performance measures. All the SMP, CSS and FPC results are reported in CSS, FPC and SMP site annual reports available on the FPC web page at

[http://www.fpc.org/fpc\\_docs.htm](http://www.fpc.org/fpc_docs.htm)

7. *Describe the method used for enumerating the indices, e.g., snorkel surveys, electrofishing, smolt trap, and the error associated with the method. Comments: The method for estimating juvenile survival (the program MARK) is outlined in the proposal. The proposal should have greater detail in the methods for estimating relative abundance and smolt-to-adult ratios. It should reference papers and reports where detailed methods are given for estimating these measures. The proposal should describe which measures have standard errors and confidence intervals reported, and how they are developed.*

Methods for collection and tagging of fish at SMP sites are listed in detail in the SMP proposal response document attachment entitled "Methods for Smolt Monitoring Tasks Identified in the document entitled 'Bonneville Power Administration FY 2003 Provincial Project Review PART 2. Narrative'". We have provided within the text of the FPC proposal, and the CSS proposal, methods for calculating survival estimates. We will provide more detailed discussion of relative abundance estimates at the dams. For more detailed discussion on abundance estimates at traps see the SMP proposal response to comments.

### **Methods for estimating relative abundance**

FPC estimates relative abundance using a parameter called the passage index. The passage index is an expansion of estimated collection of fish at a dam, to the total number of fish passing the dam. The number is usually expressed in terms of a daily passage index. The index assumes a 1:1 fish to water volume ratio, expanding the dam collection by the proportion of total discharge that was spilled during that 24 hour period. A Formula for calculating the index at each dam is available at the FPC website at [http://www.fpc.org/Metadata/FPC\\_SMP\\_Metadata.htm](http://www.fpc.org/Metadata/FPC_SMP_Metadata.htm) - [Passage%20Index](#). The generalized form for the calculation is  $(\text{TotalCollection} * ((\text{PowerhouseFlow} + \text{SpillFlow}) / (\text{PowerhouseFlow})))$ . The passage index is not a true estimate of abundance, rather it is a relative estimate of abundance useful for tracking the migration timing of a population of fish passing a dam on a given year. It assumes a similar collection efficiency over the season for a given species. The utility of the passage index, apposed to other methods of real-time population estimation, is that it relatively simple to compute and relies on very few assumptions. This type of a statistic does have flaws, but because the assumptions are relatively few, it is easy to account for the assumptions when operations of the dam would cause collection efficiency to change or when higher spill volumes cause higher than 1:1 spill efficiency.

### **Smolt-to-adult return ratios**

A detailed description of the calculation smolt-to-Adult return ratios are quite extensively described in the CSS proposal #199402000, section 9F. Please refer to that proposal for a thorough explanation.

8. *Specify any expansion factors (e.g. aerial expansions, trap efficiency) or other adjustments (e.g., daylight trapping only) that need to be applied to the raw counts. Provide the rationale supporting the use of those expansion factors, how the factors change over time, how they are estimated and assess their reliability.*

Presumably, this question is referring to trap sampling. In the past, SMP has purposely not expanded trap numbers to an abundance estimate, but rather reported only the total numbers of fish collected at the various traps. However, with the NMFS emphasis on abundance estimation and survival estimates as part of the RME groups monitoring efforts, the SMP has developed additional methods for abundance estimates at traps. These methods are described in the SMP proposal response to ISRP and RME group comments.

9. *Provide an assessment of the accuracy and precision associated with the proposed methods for estimating juvenile abundance or an index of juvenile abundance. Comments: Estimates of bias and precision should be available for all estimates derived. When sample sizes are small biases can be large and precision poor. How will bias be assessed?*

There are two different estimates of juvenile abundance that we are proposing; passage indices, which are based upon estimates of collection of fish at a dam, and abundance estimates of fish passing traps. For detailed discussion of trap efficiency and abundance estimates related to traps see the SMP proposal response to ISRP comments. The passage index statistic is described below.

### **Passage Index**

At the dams, the juvenile abundance is the passage index described in response to comment #4 item # 7 above. The passage index is an expansion of estimated collection of fish at a dam, to the total number of fish passing the dam. The number is usually expressed in terms of a daily passage index. The index assumes a 1:1 fish to water volume ratio, expanding the dam collection by the proportion of total discharge that was spilled during that 24 hour period. A Formula for calculating the index at each dam is available at the FPC website at [http://www.fpc.org/Metadata/FPC\\_SMP\\_Metadata.htm - Passage%20Index](http://www.fpc.org/Metadata/FPC_SMP_Metadata.htm - Passage%20Index). The generalized form for the calculation is  $(\text{TotalCollection} * ((\text{PowerhouseFlow} + \text{SpillFlow}) / (\text{PowerhouseFlow})))$ . The passage index is not a true estimate of abundance, rather it is a relative estimate of abundance useful for tracking the migration timing of a population of fish passing a dam on a given year. It assumes a similar collection efficiency over the season for a given species. The utility of the passage index, apposed to other methods of real-time population estimation, is that it relatively simple to compute and relies on very few assumptions. This type of a statistic does have flaws, but because the assumptions are relatively few, it is easy to account for the assumptions when operations of the dam would cause collection efficiency to change or when higher spill volumes cause higher than 1:1 spill efficiency. The level of sampling required to estimate collection with precision is described below.

As described in the above paragraph, there are two main assumptions in the passage index; 1:1 fish passage efficiency in spill and powerhouse flows; and stable collection efficiency at the dam over the juvenile fish migration season for any fish population of interest. Both of these assumptions can lead to bias in the expansion used for the passage index. First, the assumption of

1:1 fish passage efficiency to water volume ratio. Fish passage through spill is known to vary with spill volume and proportion and so this assumption can lead bias in the passage index within a season as well as among years. Second, guidance efficiency, which is the proportion of fish passing the project in powerhouse flow that are collected, can also vary during the season. This too can bias the passage index expansion in relation to other dates within a given season and between years. This is especially true when the operations of the dams change considerably between years or within a year. For example, the operation of the raised spillway weir (RSW) at Lower Granite Dam in 2002, is thought to have resulted in a collection efficiency in the range of 20% compared to NMFS preseason estimate of 43%. It is likely this lower collection efficiency was related to a decrease in fish guidance through the juvenile bypass since the RSW diverted fish from turbine 6 entrainment over the spillway.

While there are biases in the passage index, any method of estimating abundance would be affected by changes in collection efficiency. Since the passage index has two very simple assumptions used in it's calculation, it is a relatively transparent statistic and therefore relatively easy to interpret when such biases become large. For example, when it was determined that the RSW seemed to be affecting fish collection at the project, based on PIT-tag recapture data, the FPC provided a revised estimate of total passage index for the season. That memo can be found on the FPC website [Modifications to 2002 yearling chinook passage index2002 at LGR](#).

As for precision of collection estimates based on sampling efforts the error on those estimates is generally thought to have a coefficient of variation no greater than 10%. Sample sizes, and the number of samples used to achieve that level of precision are described below.

On October 7, 1992, NMFS provided the FPC with additional comments on the 1993 Smolt Monitoring Program. One comment pertained to determining minimum sample rates at collector dams. According to their letter, CZES in consultation with Dr. Lyle Calvin, arrived at the following recommended sampling criteria:

- 500 fish per day when daily estimated totals are < 50,000 fish, and
- 1% of the number collected at Lower Granite Dam when daily estimated totals are >50,000 fish.
- 1.67% of the number collected at Little Goose and McNary dams when daily estimated totals are >50,000 fish.

The rationale for these criteria is that sample sizes should be selected that keep the coefficient of variation (standard error / estimate) of the collection less than 5%. Within each hour the series of systematic sub-samples are taken at fixed intervals. Including "enough" sub-samples per hour to account for the non-uniform (*i.e.*, clumped or aggregated) emigration pattern of fish from the wet separator to the sample gate was an important consideration in establishing the hourly sampling protocol. In 1991, the FPC requested that the minimum duration of any sub-sample be no less than 12 seconds, and that a minimum of 5 sub-samples per hour (equivalent to a minimum hourly sample rate of 1.67%) be taken. The minimum sub-sample duration was set at 12 seconds. With the old mechanical sample timers, which could only be set to the nearest tenth of a minute, the lowest duration of 6 seconds would have increased the likelihood of biased (mostly

undercounted) estimates of collection totals due to the sampling edge effect created by the time it takes to open and close the sampling gates.

In 1995, the FPC was asked to look at reducing the handling of large numbers of smolts during periods of peak passage. A new minimum allowable sample rate of 0.667% was established for use when collection numbers were rising above 100,000 at the dams. By 2001, all the old mechanical timers had been replaced at the COE dams with modern electronic timers, which are programmed to create sample rates changeable at increments of tenths of a percent. In 2002, a new set of sample rates was established to replace the old rates, *e.g.*, the 0.667% rate was replaced with a 0.7% rate. Also in 2002, the FPC was asked by the COE biologist at Little Goose Dam to allow for even lower sample rates during periods of excessively large numbers of fish being collected, as was occurring at that site. We added an emergency level of 0.5% for use during those periods, with the stipulation that the normal minimum rate remains at 0.7%. The optimal number of sub-samples per hour is still set at 6 until the sample rate drops below the level that allows for a minimum 12-second duration per sub-sample. When sample rates drop to 1.5%, 1.0% and 0.7%, the corresponding number of sub-samples drop to 4, 3, and 2 sub-samples per hour, respectively in order to sub-sample durations of at least 12 seconds.

At sample rates below 25%, the minimum number of fish in the sample will be approximately 500 fish, the goal in effect since 1992. At sample rates of 25% and higher, the number of fish actually sampled may drop below 500 as the collected population decreases. The maximum rate at the lower Columbia River dams is 25%, whereas it goes to 100% at Snake River dams when the transportation in mini-tankers begins. The following table lists the current sample rates, number of sub-samples per hour, and range of daily number of fish desired for each sample rate.

**Sample rate recommendations at John Day, Bonneville, McNary, Lower Monumental, Little Goose, and Lower Granite Dams**

Recommended electronic timer-controlled sample gate settings.

Estimated Daily Collection	Sample Rate (%)	Equivalent Multiplier 1/sample rate	Sample Sec/ hour	Subsamples per hour	Subsample Duration in seconds	Estimated number of fish in Sample
Emergency	0.50%	200	18	2	9	
> 75,000	0.70%	143	25.2	2	12.6	> 525
50,000 - 75,000	1.00%	100	36	3	12	500 - 750
35,000 - 50,000	1.50%	66.6	54	4	13.5	525 - 750
25,000 - 35,000	2.00%	50	72	6	12	500 - 750
16,500 - 25,000	3.00%	33.3	108	6	18	495 - 750
12,500 - 16,500	4.00%	25	144	6	24	500 - 660
10,000 - 12,500	5.00%	20	180	6	30	500 - 625
7,500 - 10,000	7.00%	14.3	252	6	42	525 - 700
5,000 - 7,500	10.00%	10	360	6	60	500 - 750
4,000 - 5,000	12.50%	8	450	6	75	500 - 625
3,000 - 4,000	15.00%	6.66	540	6	90	450 - 600
2,500 - 3,000	20.00%	5	720	6	120	500 - 600
1,500 - 2,500	25.00%	4	900	6	150	375 - 625
500 - 1,500	50.00%	2	1800	6	300	250 - 750
< 500	100.00%	1	3600	1	3600	< 500

For Lower Columbia River sites, the max sample rate is 25% except when a higher rate is needed for several hours to collect fish for tagging studies.

Carry multipliers to 3 digits total, then round(1/multiplier,3) will provide sample rate to nearest 10th place that is correct.

During periods of peak juvenile shad passage, lower sample rates than needed to meet salmonid sample goals may be used to reduce handling and mortalities on shad.

Figure 1 shows a plot of the coefficient of variation that results from the current sample rate criteria. It shows that the goal of having the collection's coefficient of variation be less than 5% is maintained when sample rates drop to 0.7% as long as collections exceed 75,000 fish. At this lowest normal sample rate, two sub-samples of 12.6 seconds duration are possible per hour. As collections decrease in numbers, the sample rates must increase to maintain a coefficient of variation less than 5%. When collections are 25,000 fish or less, then sample rate of 2% or higher are needed to maintain a coefficient of variation less than 5%. As sample rates increase from 2% to higher levels, six sub-samples of 12 seconds or greater duration are possible per hour.

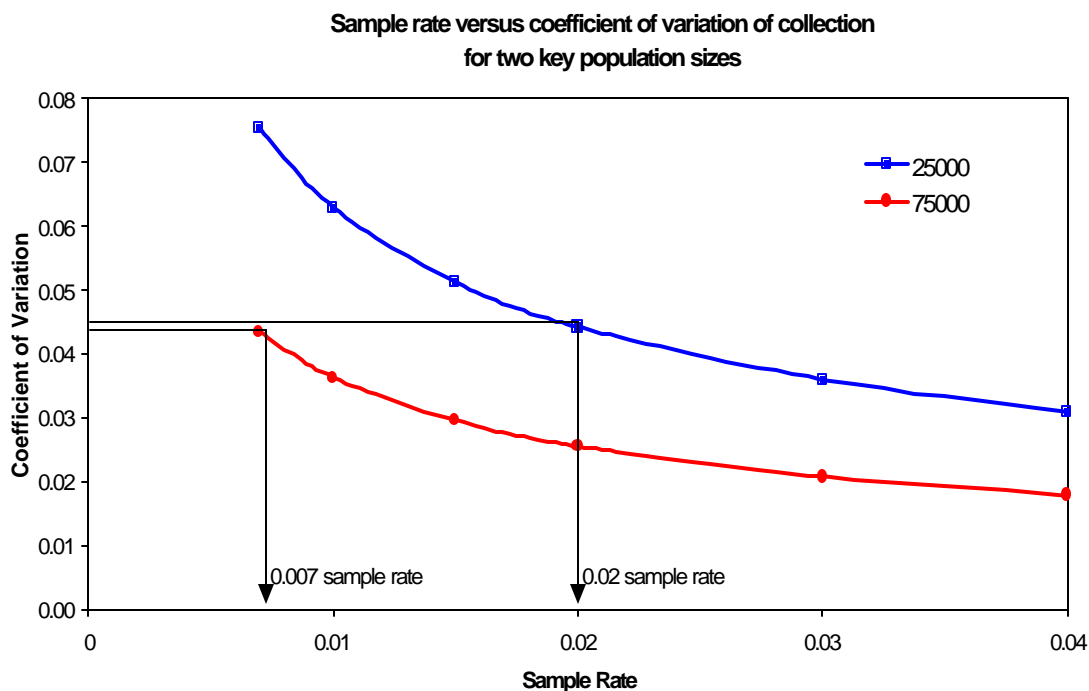


Figure 1. Plot showing minimum sample rates needed to maintain a coefficient of variation of less than 5% for two levels of estimated collected population at a dam facility.

***10. As part of FPC activities a variety of smolt survival estimates are generated using combinations of hatchery and wild fish. In the RME-context of NMFS BO, these estimates could be useful in computations of D, EM and testing compliance with survival Performance Standards for the hydro system. It would be instructive if the investigators provided examples as to how these might be applied to such.***

We agree, there are several aspects of FPC tasks and activities that address the assessment of Biological Opinion performance standards that could be helpful in assessments of “D” and “EM”. For example, several tasks in the FPC activities in implementing the CSS study apply.

They include for mark groups; in-river smolt survival estimation, estimation of SARs for Lower Granite to Lower Granite, estimating SARs by downstream passage history, estimating “D” and calculating confidence intervals for SARs, ratios of SARs and “D”. Wild chinook groups have been added to the hatchery groups and hatchery and wild steelhead mark groups have been proposed for the 2003 work.

Survival estimates for index mark groups, and abundance estimates could be generated through the SMP. Population abundance and hydrosystem survival both could estimate at SMP traps in the Snake River Basin. With regards to SMP trap operations, this would require changing operations so that estimates of trap efficiency could be developed. Trap efficiencies have been estimated through the SMP in past years and the SMP could be revised to develop trap efficiencies. In addition, PIT tagging release numbers could be increased in order to provide adequate sample sizes for making precise survival estimates over longer reaches.

The FPC, SMP and CSS projects together could establish a long-term consistent time series of information by monitoring and calculating passage parameters such as, survival, SAR by passage history and “D” annually as part of a regional monitoring program, such as envisioned by project #35033.

***11. Given there are a number of other NMFS (D,EM, inriver survival estimates) and CBFWA (CSS) studies producing hydro-related survival estimates, it would be useful to understand what the applications of the collective estimates are. It appears that there may be overlap for some stocks and river segments. However, this is difficult to decipher since the efforts are not treated as a whole. This is probably more of a regional process matter than one specific to FPC investigations.***

One of the FPCs’ main tasks is to assure that the present CBFWA member’s joint studies, the SMP #198712700, the CSS #199602000 and the FPC #199403300 are planned and designed together. They are specifically planned so that they do not overlap. Wherever possible these projects share mark groups and data summary and analysis takes place together at the FPC. CSS mark groups are utilized in SMP migration characteristics analysis, and marking of CSS wild mark groups takes place at SMP sites by SMP personnel to maximize efficiency. Further it is the task of FPC to coordinate CSS and SMP marking and activities with other research studies such as NMFS transportation studies and passage activities such as the COE transportation sampling, which is carried out by SMP personnel to maximize efficiency. FPC investigations, and these three projects are not treated or designed and implemented independently of each other or of other research and monitoring projects.



**Attachment A**  
**to**  
**Fish Passage Center Proposal #199403300**  
**Response to ISRP Comments**

## 2002 FISH PASSAGE CENTER PROCEDURES

**Last updated 08/12/02**

G:\staff\documents\How\_To\Procedures2002.doc

## TABLE OF CONTENTS

DAILY DUTIES .....	2
Daily Checklist.....	2
Crohms.....	2
Flow and Spill.....	3
Adults – Condensed Daily Fish Report .....	4
Update histfishtwo Adult database.....	4
Update adults2002 database.....	4
Import files to database .....	4
Backup Post 7 Day Adult Procedure if histfishtwo procedure fails.....	5
Posting SMP Batches .....	6
Instructions for 2-week catch report.....	6
Instructions for 2-week passage index report .....	6
Instructions for sampling comments .....	6
Instructions for transportation report .....	6
Total Dissolved Gas.....	7
Files from COE and Grant County PUD .....	7
Loading Files to TDGS database and creating a report file.....	7
Checking the data.....	9
Gas Bubble Trauma.....	9
Files from sites .....	9
Checking the data.....	9
Loading Files to GBT database.....	10
Generating Reports.....	10
Ascii text file for the WEB .....	10
Cumulative Passage Plots .....	10
Cumulative Temperature Plots - Run twice a week .....	11
Updating Scroll case Temperature Plots .....	11
Location of the Temperature Plots.....	11
WEEKLY REPORT FORMATTING.....	12
Weekly Passage Index Report.....	12
Transportation Report .....	12
Daily Flow & Spill.....	12
Hatchery Release Report .....	12
TDGS Weekly Report .....	12
GBT Weekly Report.....	13
Adult Year to Date Table for Weekly Report .....	13
To get 2001 or 1992 to 10 year average: .....	14
Post Adults to Web.....	14
PUTTING THE WEEKLY REPORT ALL TOGETHER .....	14
SMP VALIDATION.....	16
Batch validation .....	16
Batch validation spreadsheets.....	17
Error Rate.....	17
REPOSTING BATCHES .....	17
SYSTEM OPERATION REQUESTS .....	18
PROCEDURE FOR POSTING TRANSPORTATION MORTALITIES.....	19
IMPORTING MONTHLY COE FLOWS.....	19
UPDATING IVES ISLAND FLOW DATA.....	21
ESA PERMIT PROCEDURES .....	21
TAPE BACKUP .....	21
PASSAGE INDEX FORMULAS .....	22
Post Season .....	22
In Season .....	23
SETTING UP A CONFERENCE CALL.....	23

# DAILY DUTIES

## Daily Checklist

- CROHMS
- FLOW AND SPILL
- ADULTS
- POSTING SMP BATCHES
- SMP POST TO WEB
- TDGS POSTING
- GBT POSTING
- CUMULATIVE PASSAGE PLOTS
- CUMULATIVE TEMP PLOTS (do twice a week)

## Crohms

1. FileDog is run from computer skookum (in data center, connected to matrix printer). The correct login for file dog to work correctly is USER: smp PASSWORD: (ask the Data System Manager).
2. Go to G:\fpc\_main\archive\crohms\daily\ directory and check that all the files arrived. If there are more than one day's worth of reports in the daily directory, then the newest files need to be moved to the "Save" directory. Files must be run one day's worth at a time starting with the oldest files.

**These are a list of the files that are downloaded daily, and the subfolder where they can be found:**

**Flow:** water\_managers\_report.txt, Hells\_Canyon.txt, BON\_power.txt, lib\_1daysback.txt, gcl\_1daysbak.txt, chj\_1daysback.txt, wel\_1daysback.txt, rrh\_1daysback.txt, ris\_1daysback.txt, wan\_1daysback.txt, prd\_1daysback.txt, dwr\_1daysback.txt, lwg\_1daysback.txt, lgs\_1daysback.txt, lmn\_1daysback.txt, ihr\_1daysback, mcn\_1daysback.txt, jda\_1daysback.txt, tda\_1daysback.txt, bon\_1daysback.txt

**Reservoir:** snake\_summary.txt, upper\_columbia\_summary.txt,

**H<sub>2</sub>O Temp:** water\_temp\_summary.txt

**Adults:** daily\_fish\_report.txt

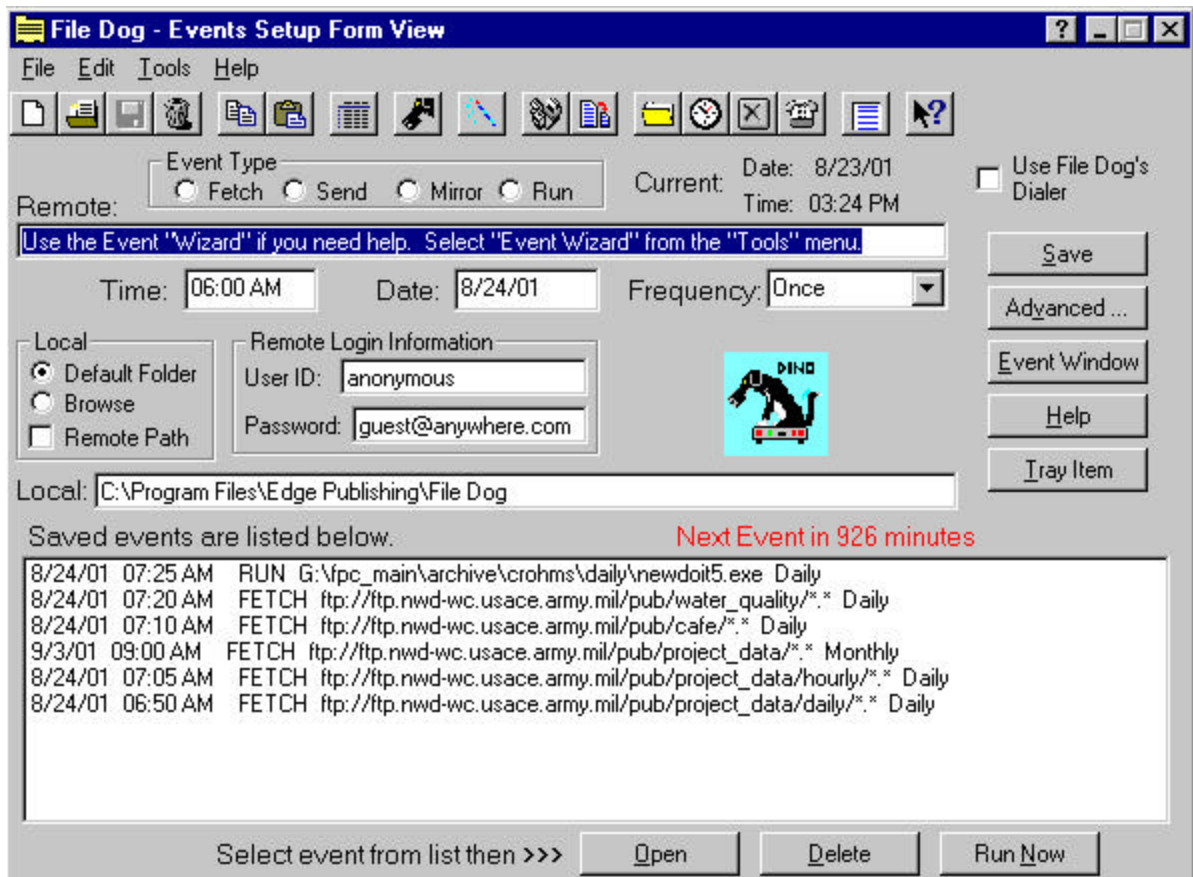
**Dgas:** lcoll.txt, ucoll.txt, snake1.txt

3. Click on the "DoIt" shortcut located on the desktop. The DoIt bat file copies the files from the daily folder to the flows, dgas, adult or H<sub>2</sub>O\_temp folders and then prints the Crohms reports to the attached printer in a set order. If files are moved to the save folder, retrieve them one day at a time, and run the "DoIt" batch file for each day. Repeat until each day's reports have been run.
4. Hang files in the data center.
5. At this time run **Adults – Condensed Daily Fish** procedure on page 3.

**Notes:** Should you need to reprint the daily data after DoIt was run, open a DOS prompt, go to the daily folder and type: *retrieve mmdd*, where mmdd is the month and day to be retrieved (i.e., 0903).

If the data was not moved into the daily folder, check the ftp folder to see if it was downloaded. If it was, run step 2 and 3 below. If the data was not downloaded or the data is incorrect, it will need to be downloaded. Open Filedog on Skookum and

1. highlight the FETCH café event and press run
2. highlight the RUN newdoit3.exe and press run



Screenshot of Filedog on Skookum 02-23-01

NOTE: At the beginning of each month, archive (zip) the previous month's flow data.

## Flow and Spill

The Crohms procedure must be run first.

1. Open **G:\reports\2002Daily Flow & Spill.xls**. There is a shortcut on computer skookum (in data center, connected to matrix printer).
2. Run import macro **Alt-F8**, which imports the flows and spills text files (report 96, report 71, report\_brn.txt, report\_hcd).

3. Next **Ctrl-Shift-U** - this macro updates the print ranges with the latest data, and kicks out a paper copy. Check the numbers and if o.k. hang in the data center.

**If it is Friday - see the Weekly Report Formatting section**

4. Then **Ctrl-Shift-P** - this macro generates an ascii web version and saves it directly to BLUEBACK\wwwroot\CurrentDaily\ and ftproot\CurrentDaily

## **Adults – Condensed Daily Fish Report**

1. Open G:\fpc\_main\archive\crohms\daily\adults\report\_91\daily\_fish\_report-mmdd.txt with txtpad32 (this is installed on SKOOKUM). Check that the file is for the previous day, if not, you will need to download it from the COE's café site (<ftp://ftp.nwd-wc.usace.army.mil/pub/cafe/>).
2. Delete all information between header (date and title) and *the Condensed Daily Fish Count Report*. Save.
3. Then save as BLUEBACK\wwwroot\CurrentDaily\adltpass.txt. Say yes to overwriting current file.

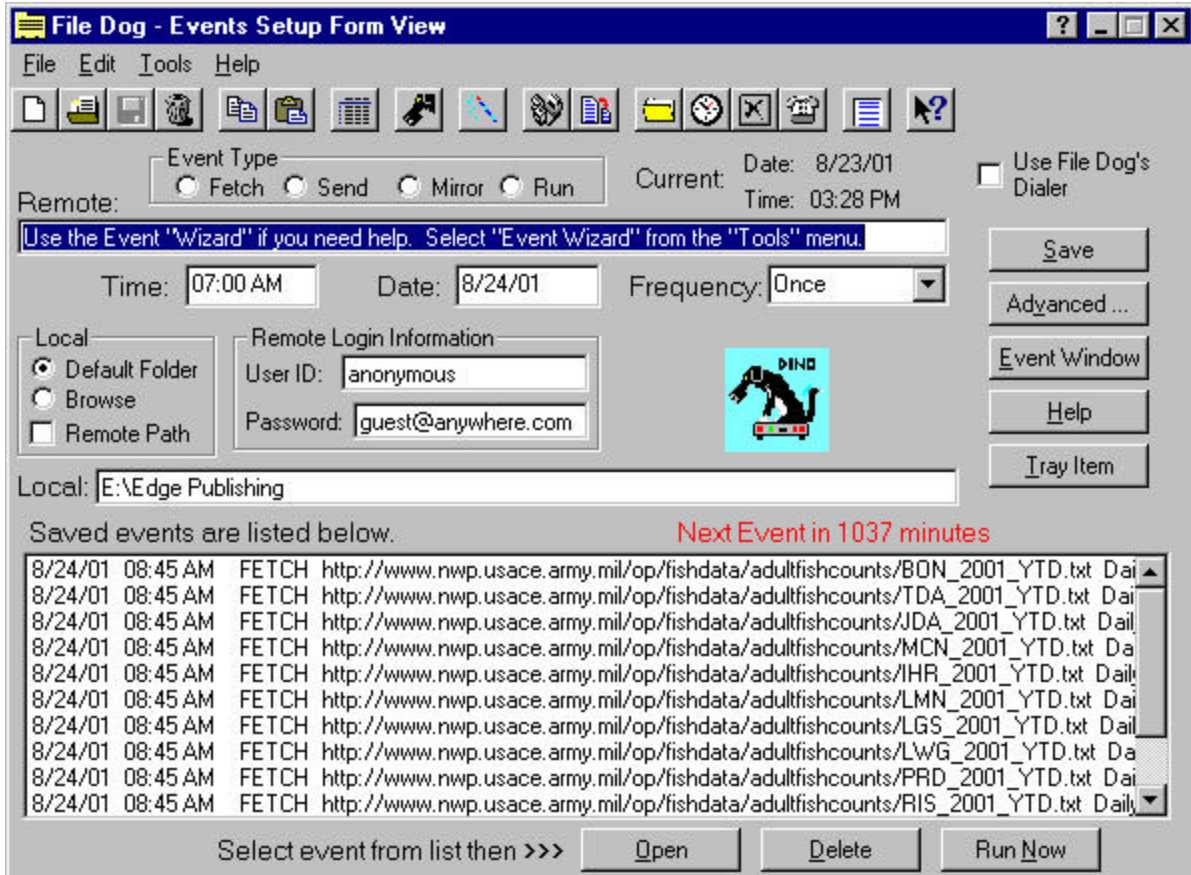
## **Update histfishtwo Adult database**

Sergei wrote a new procedure which downloads the COE running sums reports (<https://www.nwp.usace.army.mil/op/fishdata/runsum2002.htm>), Chelan CO PUD's web report (<http://www.chelanpud.org/fishcounts/count.htm>), Grant CO PUD's web report (<http://www.gcpud.org/stewardship/spill/fish/2002/Anadromous-Count-2002.csv>), and Douglas CO PUD's web report (<http://www.douglaspud.org/>) - select fish counts under featured (updated). This procedure runs every half hour Sat to Thursday and every five minutes on Friday. The resulting adult report [http://www.fpc.org/CurrentDaily/7day-ytd\\_Adults.htm](http://www.fpc.org/CurrentDaily/7day-ytd_Adults.htm) is automatically posted.

## **Update adults2002 database**

### **Import files to database**

1. The COE is not posting the adult data at any set time, so go to <http://www.nwp.usace.army.mil/op/fishdata/runsum2002.htm> and check that the files have been updated, when they have then run the file dog procedure on kokanee (Deidre's computer)
2. Open G:\reports\import\_adults2002.exe.
3. Select import all files, and when it is through select close SQL and exit program.



Screenshot of Filedog on Kokanee 02-23-01

### Backup Post 7 Day Adult Procedure if histfishtwo procedure fails

1. If Sergei's import procedure fails for any reason, then go to greenfish (windows 2000) and open the control panel, then select scheduled events and stop both FileCollectorDaily and FileCollectorFriday events by unchecking the enabled box under properties.
2. Open G:reports\ **2002Adults\_7 day and TYD.xls**
3. Run update macro (control-shift-U) or go to import 7 day data and import ytd data worksheet and hit refresh.
4. Save the file. Print the report and hang in the data center (Friday only).
5. Select macro: Post\_to\_Web (control-p). This will publish the current worksheet to \\BLUEBACK\wwwroot\CurrentDaily\7day-ytd\_adults.htm

## Posting SMP Batches

Open G:\reports\Run\_PI\_Catch\_Transport\_Comments.xls and run macro run\_4reports (control-r) or hit smiley face icon on taskbar (if your computer is set up with this shortcut). If you don't need passage index and transportation reports printed then run the macro run\_noprint\_4reports (control-n).

- Or you may run the next four procedures individually. NOTE: For the weekly report you will then need to reopen **2002passageindex.xls** and **2002TransportationReport.xls** and save the sheets to the **weekly report directory**.

### Instructions for 2-week catch report

1. Open G:\reports\2002catch and run macro control-shift-F to refresh the data, create the subtotals and format the columns.
2. Run the macro Save to Web (control-shift-P)
3. Save file and close.

### Instructions for 2-week passage index report

1. Open G:\reports\2002PassageIndex.xls and run macro doall (control-shift-D) to run all macros. This macro runs the queries and post the html to the web and the text report to ftp server.
2. Print out a copy of html version – passage index worksheet and hang in data center.  
**If it is Friday - see the Weekly Report Formatting section**
3. Save the file.

### Instructions for sampling comments

1. Open G:\reports\2002sampcom.xls.
2. Run the macro doall (control-a) which will run the query, post the report to the web and save the file.

### Instructions for transportation report

1. Open the file G:\reports\2002TransportationReport.xls.
2. Run the macro runall (control-shift-A) which will run the query macros and post the files to the web (CurrentDaily/transport.htm.)
3. Print out a copy of the ytd and two week worksheet and hang in the data center.

**If it is Friday - see the Weekly Report Formatting section**



## Total Dissolved Gas

### Files from COE and Grant County PUD

COE data are downloaded by Filedog on SKOOKUM (data center computer by dot matrix printer). The files used to generate the TDGS report are placed in the G:\FPC\_main\archive\crohms\daily directory. When the "daily" batch is executed the files are transferred to the ...\daily\dgas directory.

The files are named using the following convention: lcol1-0401.txt is the file for the lower Columbia sites (report lcol1.txt) for the date 4/1/01. Three files are processed for each day's report:

- Lcol1.txt- lower Columbia
- Ucol1.txt -upper and mid-Columbia
- Snake1.txt -lower Snake.

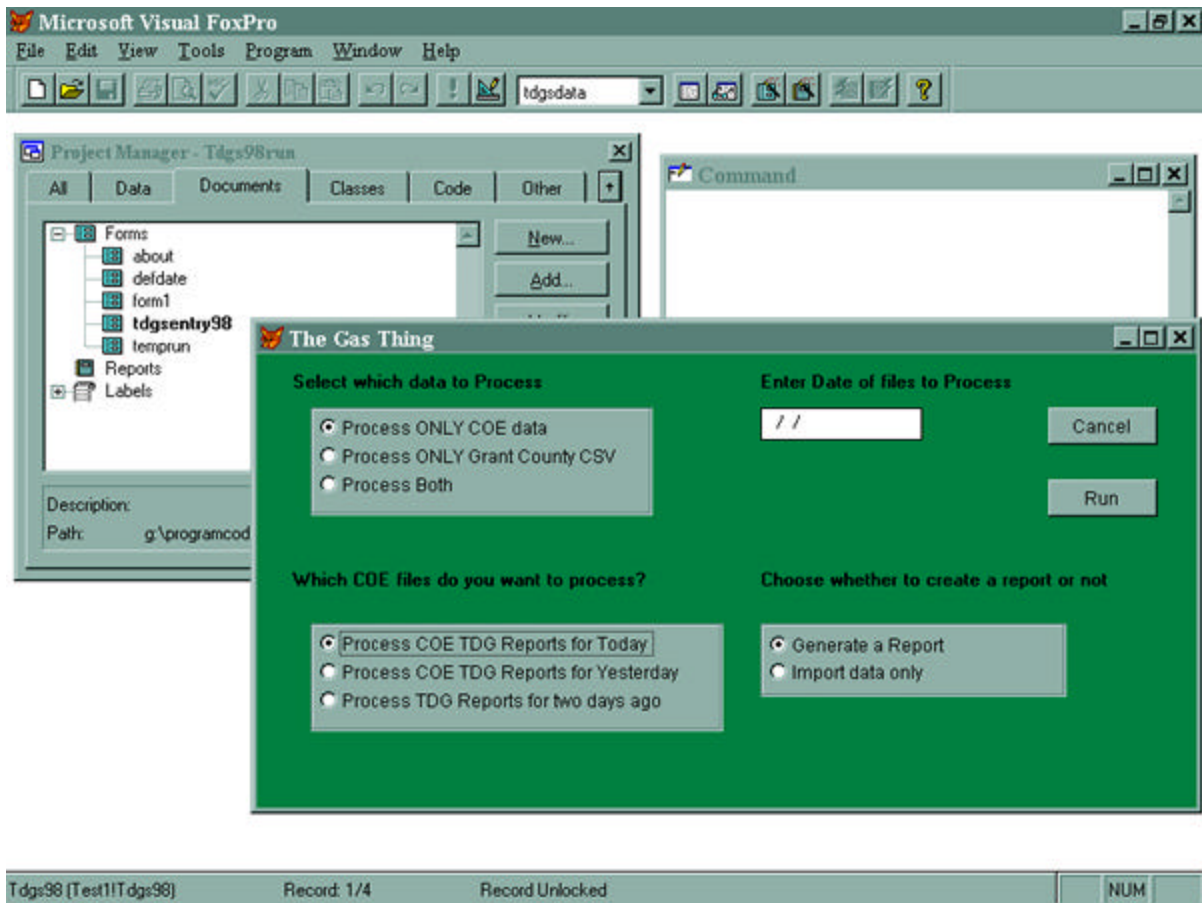
The COE keeps files for four days under this naming convention. Download the lcol1, ucol1 and snake1 reports to generate the reports through midnight the previous day. On Monday select lcol2, ucol2, snake2 as well as lcol3, ucol3 and snake3 to update the entire weekend.

In the past Grant County PUD generated data for fixed monitors at Priest Rapids and Wanapum dams. These data were combined in one CSV file for each date (four monitors). The data files had been available at their ftp site at the following address: ["www.gcpud.org/fandw/spill/tdg/fixd/2000/csvform/"](http://www.gcpud.org/fandw/spill/tdg/fixd/2000/csvform/). **These files are not being made available in 2001 due to outside competition for FERC license for GC PUD sites.**

These files are named according to the date on which they are generated. A file called "031000.csv" would be data for March 10, 2000. The PUD updated daily during the season; each day files needed to be manually downloaded and saved to g:\fpc\_main\archive\crohms\daily\dgas\.

### Loading Files to TDGS database and creating a report file

Open FoxPro file by clicking shortcut "TDGS" located on the desktop on Halfmoon. From the "File" pulldown menu select "Open" and navigate to g:\programcode and select the file "[tdgs98run.pjx](#)". Then from the Project Manager Window, that pops up when the file is opened, click on the "documents" tab. Select the "tdgsentry98" form (bold font) and click on the run button to the right side of the Project Manager Window. This will open the main form from which



Screenshot of TDGS Visual Fox Pro Program

you can run the reports. As you can see in the above figure there are three main selections in the form. You can select which files to process and you can select whether to import data, which allows you to load multiple days of files, or to generate the report after loading files. Finally there is a date entry box in which you enter the date of the files you want to load.

Select "Process ONLY COE data" in the upper left "option group". Select "Process COE TDG Reports for Today" in the lower left option group. If you have only 1 day of data to import Select "Generate a report" in the lower right "option group". Now enter the date of the file to process. Usually today's date in the dd/mm/yy format. Click on the run key.

The program will import data from the files and when the import is complete the program will prompt you to enter the ending date for the report it is about to generate. Enter yesterday's date dd/mm/yy format (unless you need to generate a report for an earlier date). Check the box "Check to generate SQL graph". Click continue. Data will be copied to an SQL table that is used to generate graphs for data checking.

## **Edit and Copy dgassum.txt to web**

Also a text file will be generated named "[dgassum.txt](#)" (click hyperlink to pull up file) and the file will be located in G:\reports. Open TextPad on Jerry's machine to edit the file. Use the global "replace" function to remove missing values (999 999 999 99). Select the "Search" pulldown menu. Click on "Replace" then "Replace All" since the 999 999 999 99 is already entered into the search window. Then Close search replace window. Save the file and copy to [\\BLUEBACK\wwwroot\CurrentDaily\](#).

## **Checking the data**

You can use the graphs generated on the web to check data for inconsistency, erratic results etc...Navigate to the web at "<http://www.fpc.org/tdgsubmit.htm>" and use these graphs to check for obvious errors in data. Also compare these graphs, and the dgassum.txt to CROHMS output files for obvious errors such as missing data, or obviously incorrect data. Any TDGS numbers outside the range of 95% to 150% should be immediately questioned. Also compare the most recent day's data with data from previous days looking for large changes in %TDGS. If there are significant problems with the data notify the ACOE (808-3939). Let them know you think there is a problem and find out what COE is doing about it. Usually the COE knows about the problem already, but not always.

## **Gas Bubble Trauma**

### **Files from sites**

Daily GBT data is sent to FPC via email and PCAnywhere. The files for each site are a table \*.dbf and a configuration file \*.cdx. Each site should send these two files for each date of GBT sampling. Before processing the files they should be moved to the directory g:\smpsites\gas data. Other files will arrive via email sent to jmccann (see halfmoon, the computer at Jerry's desk, email should be set to receive this mail). A fax copy of the raw data sheets is also sent to FPC for each day of sampling. See the "Sampling Schedule" table to determine which dates sites are sampling for GBT.

### **Checking the data**

Check the fax data sheets for obvious errors such as missing data, incorrect entries or incorrect summaries. If there are significant problems with the data sheets notify the site and have them either correct the problem and resend the datasheet fax or make sure they do not repeat the problem if it is one that cannot be corrected (e.g. forgetting to enter clip codes for fish). The next step is to check the data file against the faxed copy of the data sheet. To view the file open Foxpro. From the pulldown menu select "File" and then

"Open". Navigate to the g:\smpsites\gas data\ directory and open the \*.dbf file. Select the "View" pulldown menu and then select "Browse". Compare the file to the fax copy. I recommend selecting 30 records to compare for each 100 fish. Also confirm any entry from the fax data sheet that has GBT signs was properly entered in the file. Use the command pack, then close the file and type " use" in the command window to deselect the table you were viewing.

### **Loading Files to GBT database**

Open the GBT Posting program located on Halfmoon by double-clicking on the GBT Post icon on the right side of the desktop. From the "File" pulldown menu select "Open - Post GBT Batch". This will open a dialogue box which will display the data files in g:\smpsites\gas data\. Select a file for posting and click on the continue key. Select OK and the file will be posted. If there is an error, or if the data has already been posted you will see a message saying that duplicates were found and that the database was not updated. Otherwise select OK when the message indicating that the database has been updated. After the data has been posted to the database transfer the files from the g:\smpsites\gas data\ directory to g:\fpc\_main\archive\gbt\2002files\.

### **Generating Reports**

There are three forms of reports that can be generated: an ascii text file for the website; an electronic copy for the weekly report; and a printed copy. The ascii text file must be generated to create the other reports. **See Weekly Report Formatting section for generating the weekly report.**

#### **Ascii text file for the WEB**

Generate the ascii text file from the GBT posting program. From the "Reports" pulldown menu select daily monitoring results. The program automatically selects today's date as the end date and ten days prior as the start date for the report. Use these default dates for the report. Click on the continue key. The text file named "gbtsum.txt" will be generated and located in g:\reports directory on halfmoon. Copy this file to the BLUEBACK\2000Daily directory and replace the file **gbtsum.txt**.

### **Cumulative Passage Plots**

This section describes procedures used to update Cumulative Passage Index Graphs.

#### **Updating the Cumulative Passage Index Plots**

After the SMP data has been posted for the day (usually by 9:00 am). Open Microsoft ISQL and select the fpc database from the pull down menu. To Update the spring migrants plots open the query file

"g:\staff\jerry\projects\02projects\PassagePlots\PassGraphSTCH1SOCH02002v1.sql".

**Note: after June 30 to update subyearling plots open file PassGraphCH0.SQL.**

Press the green arrow in the toolbar ("Query Execute"). This should update the SQL table - FPC.DBO.TESTPI85to99 - from with the data is drawn to build the graphs on the web.

### **Location of the Cumulative Passage Index Plots**

Passage plots are now maintained on the web site. To view the passage plots go to the web site and click on the "Smolt Data" tab. Then under "Smolt Data Including Passage Indices" click on the text hyperlink "Cumulative Passage Index Graphs" or click here [Fish Passage Center Passage Index Graph 2000](#). From the pull-down menu choose a site and a species to plot.

### **Cumulative Temperature Plots - Run twice a week**

#### **Updating Scroll case Temperature Plots**

The data is gathered from COE report 99 files and stored on the FPC sql server in the tables FPC.DBO.TDGGRAPH and FPC.DBO.TEMPSCRL. To update open FoxPro. Run the project g:\programcode\tempproc.pjx. It probably only runs properly only on Jerry's Machine. On the documents tab select temprun and click on the run tab to the right. Enter today's date in the date window. Select "Import data and Update SQL table" radio button. Then click on the run button. This should do it. Foxpro will close automatically when the program has run.

### **Location of the Temperature Plots**

Temperature plots are now maintained on the web. On the web site click on the "river data" tab. Select the "Query" hyperlink in the "Water Temperature Data" section of the page or click on this hyperlink to go to the page directly [2001 Real Time versus Historic Temperature Graphs](#).

These plots contain Historic scroll case, TDGS-Fixed monitoring site plots as well as real-time scroll case temperatures. To update TDGS temperature data see the section of this document covering that procedure.

## WEEKLY REPORT FORMATTING

### Weekly Passage Index Report

1. After running passage index procedure, open the file **G:\reports\2002PassageIndex.xls**.
2. Go to the html version – passage index worksheet , select the whole worksheet and paste into a new workbook in G:\staff\document\2002 Documents\WRs 2002\ in that week's folder as passageindex.xls.

### Transportation Report

1. After running transportation procedure, open the file **G:\report\2002TransportationReport.xls**.
2. Select the Two week worksheet and copy it to a new workbook. Don't include footer. Then select the YTD worksheet and copy it below the two week data. Save to G:\staff\document\2002 Documents\WRs 2002\ in that week's folder as transportation.xls.

### Daily Flow & Spill

1. Open **G:\Reports\2002Daily Flow & Spill.xls** and choose Output worksheet.
2. Copy all of the data (A2: O67), paste onto a new Excel workbook.
3. Save the workbook in G:\staff\document\2002 Documents\Wrs 2002\ in that week's folder as flowspill.xls.

### Hatchery Release Report

1. Open **G:\reports\2002\_wk\_rpt\Hatchery -Report.xls**. Run query runall (control-r) which will run all the queries on the page. Follow the instructions on the read me page for how to format the report worksheets.
2. Copy data from weekly report worksheet to new worksheet and save new spreadsheet as hatchery.xls in G:\staff\documents\WR2001\ under appropriate weekly directory.

### TDGS Weekly Report

After running the foxpro program and other steps outlined above for editing the dgassum.txt file, open the file "[2001TDGSTMPL.XLS](#)" located in G:\Reports. Select "enable macros" when prompted as you open the file. Press Alt-f8 to view a list of macros. Select "Importdata" macro, then click the run key located to the right. This will import data from dgassum.txt and format it for weekly report, and save the XLS file. Save a copy of the 2000TDGSTMPL.XLS file to the weekly report directory located in g:\staff\document\WRs 2000\. Give the file a name corresponding to that week e.g. 0410tdg.xls if today were April 10.

## GBT Weekly Report

Open Excel and open the file "gbtreport.xls" located in g:\reports directory. The weekly report is grabbed from the worksheet named "Finaltempl" in the file. The macro updates the template and saves it for weekly report as necessary. Press Alt-F8 to activate the Macros list and select the macro "importgbtdata". Press the run key. This macro will import data from the text file gbtsum.txt located in g:\reports directory, and format it for the weekly report. If a printed copy of the report is desired select yes to print a copy of the file when prompted and select yes when prompted to save the file. You do not need to save the file.

Note: You may want to save the file first, and edit it prior to printing. Do not save the file again after editing, as this will cause the macro to run incorrectly.

## Adult Year to Date Table for Weekly Report

1. Open **G:\reports\Cum\_Adults\_Passage2002.xls**.
2. Run the macros (refresh macro – control-r) to update the query results for the 6 query worksheets (sergei, 2001, 10year, 2002, 2001 data, 10 year data).
3. The data in the 2002, 2001 and 10year cells of the current worksheet are automatically linked to the 2002, 2001 and 10year query worksheets. The data for sites PRD, RIS, RRH and WEL for 2002 are linked to the Sergei worksheet. **DO NOT DELETE** the data in the current worksheet's cells, rather after opening the file and running the macros (refresh macro – control-r) to update the query results, then copy the data cells from the current worksheet and paste special/paste link them into the copy\_of\_current worksheet. NOTE: that at present the linking has to be removed at the beginning and end of the year as the 10year query only returns those sites with data and the current worksheet linking is invalid.
4. AN IMPORTANT PART OF THIS STEP IS ASCERTAINING FOR EACH SITE THE LAST DAY THAT DATA IS AVAILABLE. You can do this by checking the webpage [http://www.fpc.org/CurrentDaily/7day-ytd\\_Adults.htm](http://www.fpc.org/CurrentDaily/7day-ytd_Adults.htm) - though this webpage updates every 5 minutes on Friday so be sure that what it reports and what the weekly report shows is the same.
5. Be sure to modify the comments worksheet – and if you change the number of lines you will need to recopy and paste special/paste link the new data to the current worksheet.
6. Proof the data, then give to Larry to review.

When the table is proofed and approved by Larry, copy the current worksheet into a new workbook and save to G:\staff\documents\2002 Documents\WRs 2002\ under that week's folder, then let Dona know it is ready.

### To get 2001 or 1992 to 10 year average:

1. If you need to run these queries manually, they are saved in G:\reports\2002\_wk\_rpt with the names ADULT-10yr\_1992\_2001 to input date.sql and ADULT-2001 totals to pinput date.sql. You will need to change the month and day in the where clause: WHERE (datepart(yy,histfish.datadate) = 2001 and ((datepart(mm,histfish.datadate) <= 05) or (datepart(mm,histfish.datadate) = 06 and datepart(dd,histfish.datadate) <= 20))))

### Post Adults to Web

First prepare adults table for weekly report (see weekly reports section). Once the weekly report (Cum\_Adults\_Passage2002.xls) has been proofed and approved by Larry then:

1. Run macro save\_to\_web (control-shift-W), which saves the file as adu passage.htm in the CurrentDaily directory of the web, and also saves the file.
2. Then hit F8 and select macro save as text which saves the file as adlt10yr.txt in the CurrentDaily directory. Close the files without saving.

## PUTTING THE WEEKLY REPORT ALL TOGETHER

Administrative staff assembles the weekly report into a final format using Adobe Pagemaker. A template has been set up in the g:\staff\document\2002 Documents\WRs 2002 directory. The report consists of words from the professional staff and tables from the data staff. Placing each staff person's piece into Pagemaker creates the report. Knowledge of Pagemaker helps, but no advanced techniques in the program are required.

1. Go to g:\staff\document\2002 Documents\WRs 2002\ and make a folder for that week named with mmdd.
2. Go to the computer log and record the new document and assign the next available number.
3. Open Pagemaker; open the in the above mentioned folder. Immediately "Save As" a document in the current weekly report directory OR open the previous week document and save with new document number into the new folder.

It helps to have a recent edition to the weekly report handy to use as reference regarding which piece of the report goes where. The summary at the beginning of the report is in a specific order, the tables follow the order of the summary narrative.

4. Modify page 1 header: Go to page one highlight header then select edit/edit story and change the date, close window. New window will automatically open then change the weekly report number.



5. Next modify headers: Go to the L (left) page of the document, pick top right header, and select edit/edit story, change date and close window. Repeat for R (right) page.
6. Delete tables and text - some wording remains from week to week (most important are the notes at the bottom of the passage index pages).
7. Save the document. You are now ready to add the new data.

	TABLES	TEXT
Larry		adults, hatchery
David		water supply, reservoir operations, H <sub>2</sub> O table
Margaret		spill
Tom		
Deidre	<ol style="list-style-type: none"> <li>1. passage index</li> <li>2. hatchery</li> <li>3. flow spill</li> <li>4. transportation</li> <li>5. adults</li> </ol>	
Jerry	<ol style="list-style-type: none"> <li>1. GBT</li> <li>2. TDGS</li> </ol>	smolt

8. The reports are either located in the report directory or in Margaret and Larry's case are available in G:\staff\ under their name. After you have received all the pieces listed above THEN - Save the finished weekly report.
9. The report is then printed and given to Michele, Margaret, Tom or Jerry to proof.
10. Print out a paper copy. **Labels for weekly report distribution** Print labels by going into Access, G:\FPC\_Main\Maillist\mail2, go to reports tab, weekly report (**just highlight weekly report – do not open**) then choose file, print (front office PCL 6 printer), use manual feed. It is helpful to print the labels and affix them to envelopes on Thursday of the week the report is due. Copy two sided, stuff in envelopes, apply postage and take (in postal bins obtained from lower level of building mailroom) completed mailing downstairs and place bins by mailbox outside back of building before 5:00 p.m. on Friday.
11. Save the file as pdt and post to web.
12. In PageMaker chose export to pdf or if this doesn't work you can print to a pdf driver. Save to g:\staff\document\WRs 2001\mdd directory. Copy this file to \\BLUEBACK\wwwroot\weekrprt\WR2001 and rename in WR01-##.pdf.

If you do not have the pdf driver you can use this routine: Choose a printer that has a name with PS in it, as in Post Script (i.e., \\SCSIFISH\Front Office PS on Front Office),

and be sure that the whole document is selected. Click on the **Options** button, check the **Write PostScript to file:** button. Click on the **Browse...** button. Navigate to the g:\staff\document\2002 Documents\WRs 2002\mmdd directory where mmdd is the date of the report and save the file (WR01-##.ps). Use Adobe Distiller to create a .pdf file. Open Adobe Distiller. Click on **File, Open**, navigate to the g:\staff\document\WRs 2002\mmdd directory and select the postscript file created in the previous step. Click on **Open**. In the "Specify PDF File Name" dialog box, navigate to the \\BLUEBACK\wwwroot\weekrpt\WR2002 directory and click on **Save**. You do not have to choose another name for the file. The results of the conversion will show in the Adobe Distiller window.

Open \\BLUEBACK\wwwroot\weekrpt\WR2002\2002WR.htm in front page and add a row to the table (it's easiest to copy and paste last week's table row) with the appropriate weekly report number and link to the .pdf file just copied to the WRs 2001 directory.

13. LAST - Email the pdf file to **weekly report email** group on Dona's computer.

## **SMP VALIDATION**

### **Batch validation**

We are validating two randomly selected batches per week. Record the week range (the week runs from Sunday to Saturday), the batch numbers and their dates on the SMP Validation worksheet and mark if it was correct or if discrepancies were found. If there were discrepancies found, record what and where the problem was found. If there are errors found in either of these two randomly chosen batches, then two more are validated. If there are errors in those, two more batches are validated, etc. When errors are found, the site is notified and copies of the email printed and saved in the blue binder. Also record the date the email was sent in the email validation results box at the bottom of the form. When you receive a response and/or repost from a site, be sure and mark the results on that week's worksheet .

## Batch validation spreadsheets

Once a week run validate.bat in G:\batchval2002. This will generate .csv files for each of the SMP project sites. Email these files to the email addresses listed below.

PROJECT	CSV FILE	CSV FILE	CSV FILE	CSV FILE	EMAIL TO:
BO1	bon_pi	bon_ic	bon_mr		jkamps@gorge.net
BO2	bon_pi	bon_ic	bon_mr		jkamps@gorge.net
JDA	jda_pi	jda_ic	jda_mr		jkamps@gorge.net
LGS	lgs_pi	lgs_ic	lgs_mr	lgs_tr	<a href="mailto:odfwgoos@bmi.net">odfwgoos@bmi.net</a>
LMN	lmn_pi	lmn_ic	lmn_mr	lmn_tr	<a href="mailto:montyp@televar.com">montyp@televar.com</a> AND <a href="mailto:marine@televar.com">marine@televar.com</a>
LGR	lgr_pi	lgr_ic	lgr_mr	lgr_tr	<a href="mailto:lgrsmp@colfax.com">lgrsmp@colfax.com</a>
MCN	mcn_pi	mcn_ic	mcn_mr	mcn_tr	<a href="mailto:tudor@oregontrail.net">tudor@oregontrail.net</a>
RIS	ris_pi	ris_ic	ris_mr		<a href="mailto:peterkcp@dfw.wa.gov">peterkcp@dfw.wa.gov</a> AND <a href="mailto:ribypass@nwi.net">ribypass@nwi.net</a>
LEW	lew_ct	lew_ic	lew_mr		<a href="mailto:sputnam@idfg.state.id.us">sputnam@idfg.state.id.us</a>
WTB	wtb_ct	wtb_ic	wtb_mr		<a href="mailto:sputnam@idfg.state.id.us">sputnam@idfg.state.id.us</a>
GRN	grn_ct	grn_ic	grn_mr		<a href="mailto:asetter@orednet.org">asetter@orednet.org</a> AND <a href="mailto:granderond@lewiston.com">granderond@lewiston.com</a>
IMN	imn_ct	imn_ic	imn_mr		<a href="mailto:peterc@nezperce.org">peterc@nezperce.org</a>

40 files

pi = passage index                      ct = count                      ic = incidental catch  
mr = mark recapture    tr = transportation

## Error Rate

Several times a year an analysis is done of the error rate for each smp site. For the time period selected, pull all the smp batches and record all the reposted batches. While doing this note what the error was and if it was our error (due to misinformation, problems with our smp entry program - Henry will let you know which problems are ours) or the sites error. Also note (where possible) if the repost was in response to an error they found themselves or from a validation email they received from us. Count the total number of batches for that time period and divide this into the number of errors to record their error rate.

## REPOSTING BATCHES

Reposted batches are saved in **G:\smbsites\replace** and the letter explaining the changes is saved to **G:\smbsites\replace\memo**. Print a copy of the attached letter or email, then attach the copy of the letter to the batch put it in the "Waiting for Approval" folder. Give this folder for Henry for approval.

When the repost letter has been signed

1. Open ISQL\_w, select database fpc and type:  
  
sp\_delete\_batch 'IMN', '01080' (obviously replace the site and batch with the correct ones.
2. Move files from G:\replace to G:\smbsites
3. Write reposted and your initials in the smp batch binder and on the new batch printout, then staple the letter and new batch on top of the old and file.

## **SYSTEM OPERATION REQUESTS**

### **Converting SORs from WORD2000 to HTML**

System Operational Requests (SOR's) are generally drafted, reviewed, faxed out and posted to the Web on Tuesdays after the weekly FPAC conference call/meeting. FPAC members write a draft of the SOR. Administrative staff faxes out the draft to the full FPAC list for review. Comments are due by 2:00 pm (unless otherwise noted) from the agencies and tribes. After the cutoff time, comments are incorporated and a final SOR is published. The final SOR is both faxed to all concerned and posted on the FPC website.

#### **DRAFT**

The SOR draft will usually be provided to FPC Data Center Staff by Michelle or Margaret. If from Michelle the document will usually be located in G:\staff\michelle\draft SOR.doc if from Margaret it will usually be in G:\staff\documents\2002 Documents\SORs2002\. Open last week's SOR, delete text and copy in new text. Change SOR number at top, change the date and add the word DRAFT to the top. Record in computer log and assign the next SOR number, save as that SOR number with the word draft before it. Fax using generic FPAC fax cover (group 2 - long list, unless Margaret or Michelle want it faxed to the salmon managers instead which is group 1). Then email it to group **FPAC Long List** (unless Margaret or Michelle want it emailed to the salmon managers (group **Salmon Managers**) instead). Add subject DRAFT SOR # and the text: Draft SOR# attached, please comment by 2:00pm.

#### **FINAL**

Emails and faxes will arrive with comments for the SOR, print these out and give to Michelle or Margaret. They will let you know when the document is ready to be finalized.

Reopen document, run spell check, obtain appropriate signature, and remove the word draft.

The SOR fax list is located in G:\staff\document\2002 Documents\SORs 2002\Fax cover for SORs.doc. Open this file, search and replace the text for the SOR number (located at the top) and the current date. Print 2 copies of the entire document. Use these cover

sheets to ensure everyone responsible for hydrosystem management receives the request. Save as docnumber-yy-#sor#.doc (126-02-#21.doc).

Fax document.

Post to web: In Word2000, save the SOR as an HTML document in the \\BLUEBACK\wwwroot\sors\2002-SOR directory (or whichever year directory is appropriate). Add the year and number for the title. Edit the file [\\BLUEBACK\wwwroot\sor\2002-sor\2002\\_sors.htm](http://BLUEBACK\wwwroot\sor\2002-sor\2002_sors.htm) to include the latest SOR listing. This can be done using either notepad or FrontPage.

## **PROCEDURE FOR POSTING TRANSPORTATION MORTALITIES**

The webpage at <http://www.fpc.org/2002transmorts.htm> needs to be updated once a week. The numbers for LGR are located in the spreadsheet Trans\_mrt01.xls which is emailed from Doug Ross (LGR) to Deidre Wood once a week, though sometimes you need to remind him. When you receive the updated version, save this file to G:\Reports\Trans\_mrt01.xls.

1. Open Front Page and open 02transmorts.htm, which is located in the root directory. Say yes to the message about checking it out.
2. Select the blank row just above the total, then go to Table, Insert, Rows and select 1 and above.
3. Open the latest Trans\_mrt02.xls spreadsheet and insert lines and subtotal the weekly numbers to check that none of the past week's numbers have been revised. To do this, compare the numbers in the spreadsheet against those on web page.
4. Type in the new information and the new totals. To get the latest totals you can look at the top of the Trans\_mrt021.xls spreadsheet. The data is posted in one week increments, so if you have additional days beyond the last full week then be sure to delete those rows before using the total numbers.
5. Close Trans\_mrt01.xls without saving changes.
6. At the bottom of 2002transmorts.htm is a last updated on sentence. Be sure to change this date.
7. Save changes. Check webpage at: <http://www.fpc.org/2002transmorts.htm> to be sure it looks correct. Close file. Exit FrontPage.

## **IMPORTING MONTHLY COE FLOWS**

This procedure can be run on Henry or Deidre's computer

1. On the 5<sup>th</sup> download monthly flow file found named in yymmm format, (02jan), from <http://www.nwd-wc.usace.army.mil/ftppub/fpc/>.

2. Right click on file and select save to file in g:\fpc\_main\archive\flows.
3. Copy the file to the c:\vfp subdirectory on Henry or Deidre's computer.
4. Run **imprtchf.prg** under foxpro in c:\vfp subdirectory. When prompted select the yymmm file copy you just obtained. Close foxpro, you now have a formatted yymmm.txt file, the same name as the input file, but with a .txt suffix then rename 02jantxt.txt to jan02.txt.
5. Open MS ISQL\_w and log in as sa and use the administrator's password. Then run the sql query g:\sql\importcoeflows\**dflow5 truncator.sql**.
6. Open msdos, go to the c:\vfp directory and run **addflow1 mmmyy.txt** from the dos prompt, but add the file you just made as a parameter ( i.e. *c:\vfp>addflow1 02jan.txt*). You will see approximately 100,000 records be added to the temp file, dflow5, on the SQL server, through screen messages.  
Note: Dflow5.fmt must be in the sql path. If it doesn't work go to the dos prompt and type set – check what the sql path is and copy this file there.
7. Run the query g:\sql\importcoeflows\import\_tbl\_coe\_hourly\_flow5.sql\*
8. Open the query g:\sql\importcoeflows\2002AddDailyflow.sql and edit the date for the current month then hit run. This table is used for the midnight to midnight flows in the site catch tables in the yearly report.

**The last step joins to the catch table, so don't run it until the end of the season.**

9. Open the query g:\sql\importcoeflows\insert\_new\_coe\_avg\_flows\_into\_catch\_tlb.sql and edit the start date to the first month then hit run. This table is used for the final passage indices, post season. This last procedure takes several hours. **NOTE: For 2000 about a dozen sites needed to have their flows modified post import to this table; therefore, do not rerun this query for year 2000 or this data will need to be reentered.**

\* If this step bombs (*violation of primary key constraint ... attempt to insert duplicate key in object*), it means that last months data contained some data for the present month. Open G:\SQL\import coe flows\delete hourly-mean flows after date.sql CHANGE the date and run. This will remove any current month's data from the tbl\_coe\_hourly and tbl\_coe\_mean tables. Then start these procedures again from step 1.

Next update the horizontal flow sheets located in G:\fpc\_main\archive\flows\COE hourly flows\

1. Run get coe mean flow.sql located in the above directory.
2. Save results to coe\_mean\_query results folder.
3. Open 2002-midnight-midnight.xls in /flows/wk1 folder.
4. Add new data.

## UPDATING IVES ISLAND FLOW DATA

Hourly Ives Island flow data is downloaded from USGS site automatically by Filedog on computer: codeblue. Then filedog runs two bat files

1. \\BLUEBACK\inetpub\ftproot\98daily\ivesupd.bat and
2. 98daily\mmm00ivs.bat – (where mmm equals the current month) and an executable 3. ives\ivesdata.exe. Ivesupd.bat makes ives.csv. On the first day of each month, open the last month's bat file and change the start and end date, and the csv name to the current month. Then open filedog and change the mmm99ivs.bat name to the current month. Next open the webpage <http://www.fpc.org/ivesisland.htm> and add the current month to the list of available monthly files.

## ESA PERMIT PROCEDURES

1. Load Query analyzer, and go to g:\sql\ESApermit and open and run the canned query named “ESA permit 2001 seasonal sample morts v1.sql”. Save the results as a .csv file
2. In the same subdirectory, open and run the canned query named “ESA permit 2001 Lyons Ferry CH1s.sql”, save the results as a .csv file.
3. In the same subdirectory, open and run the canned query named “ESA permit 2001 GBT seasonal sub totals.sql”, and save the results as a .csv file.
4. Make an .XLS file where each of the .csv files becomes one sheet in the .XLS file. If this is not the first ESA query of the season, compare the numbers to the previous queries from that calendar year to make sure that the numbers look good. Once you have checked the numbers out, email the .xls file to Margaret Filardo as an attachment.

## TAPE BACKUP

We do a daily tape backup of the web server, the ftp server, scsifish\data, SQL 1, and SQL 3. There are 3 tape drives:

1. SCSIFISH – which tapes it's own d drive named data, and wwwroot and ftproot from BLUEBACK.
2. SQL 1 – on SQL 1 (uses large white tapes – located in safe)
3. SQL 3 – on SQL 3 (uses small black tapes labeled SQL 4)

We do a weekly backup of scsifish\superG

4. SCSIFISH/superG – which tapes from SQL 3 – on Sergei's desk

Troubleshooting: If scsifish backup fails, check the message to see if there is a file listed as corrupted, if so find out who's file it is and if it can be deleted. Then warn everyone that scsifish will be offline for 10 minutes and run checkdisk.

To manually run backup on windows 2001 select suberG, start backup and select all folders but winnt.

## PASSAGE INDEX FORMULAS

### Post Season

passageindex = round(case

when a.site = **'BO1'** and datepart(yy,a.sampleenddate) between 1986 and 1999 then  
sum(b.collectioncount)/((avg(a.phouse1flow/(a.phouse1flow+a.phouse2flow+a.totalspill)  
)))

when a.site = **'BO1'** and datepart(yy,a.sampleenddate) between 2000 and present then  
null

when a.site = **'BO2'** then  
sum(b.collectioncount)/((avg(a.phouse2flow/(a.phouse1flow+a.phouse2flow+a.totalspill)  
)))

when a.site = **'RIS'** then  
sum(b.collectioncount)/((avg(a.phouse2flow/(a.phouse1flow+a.phouse2flow+a.totalspill)  
)))

when a.site = **'JDA'** and datepart(yy,a.sampleenddate) between 1998 and present then  
sum(b.collectioncount)/((avg(c.coe\_turb\_dis/(c.coe\_turb\_dis+c.coe\_total\_spill))))  
when a.site = **'JDA'** and datepart(yy,a.sampleenddate) between 1987 and 1997 then  
sum(b.collectioncount)/((avg(a.phouse2flow/(a.phouse1flow+a.totalspill))))  
when a.site = **'JDA'** and datepart(yy,a.sampleenddate) = 1986 then  
sum(b.collectioncount)/((avg(a.phouse2flow/(a.phouse1flow+a.phouse2flow+a.totalspill)  
)))

when a.site = **'JDA'** and datepart(yy,a.sampleenddate) = 1985 then  
sum(b.collectioncount)/((avg(a.phouse2flow/(a.riverflow+a.totalspill))))

when a.site = **'LMN'** and datepart(yy,a.sampleenddate) between 1991 and present then  
sum(b.collectioncount)/((avg(c.coe\_turb\_dis/(c.coe\_turb\_dis+c.coe\_total\_spill))))  
when a.site = **'LMN'** and datepart(yy,a.sampleenddate) between 1987 and 1990 then  
sum(b.collectioncount)/((avg(a.phouse2flow/(a.phouse1flow+a.totalspill))))  
when a.site = **'LMN'** and datepart(yy,a.sampleenddate) = 1986 then  
sum(b.collectioncount)/((avg(a.phouse2flow/(a.phouse1flow+a.phouse2flow+a.totalspill)  
)))



when a.site IN ('LGS','LGR','MCN') and datepart(yy,a.sampleenddate) between 1985 and 2001 then  
sum(b.collectioncount)/((avg(c.coe\_turb\_dis/(c.coe\_turb\_dis+c.coe\_total\_spill))))

else sum(b.collectioncount)/((avg(c.coe\_turb\_dis/(c.coe\_turb\_dis+c.coe\_total\_spill))))  
when a.site IN ('GRN', 'LEW', 'CLW', 'IMN', 'WTB') then null end,0)

## In Season

passageindex = round(case

when a.site = 'BO1' and datepart(yy,a.sampleenddate) between 1986 and 1999 then  
sum(b.collectioncount)/((avg(a.phouse1flow/(a.phouse1flow+a.phouse2flow+a.totalspill)  
)))

when a.site = 'BO1' and datepart(yy,a.sampleenddate) between 2000 and present then  
null

when a.site = 'BO2' then  
sum(b.collectioncount)/((avg(a.phouse2flow/(a.phouse1flow+a.phouse2flow+a.totalspill)  
)))

when a.site = 'RIS' then  
sum(b.collectioncount)/((avg(a.phouse2flow/(a.phouse1flow+a.phouse2flow+a.totalspill)  
)))

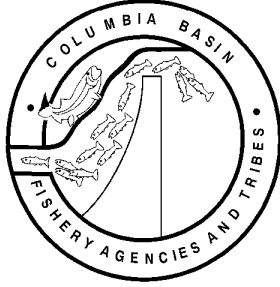
when a.site IN ('JDA', 'LMN', 'LGS', 'MCN', 'LGR') and  
datepart(yy,a.sampleenddate) in-season then  
sum(b.collectioncount)/((avg(a.phouse1flow/(a.phouse1flow+a.totalspill))))

when a.site IN ('GRN', 'LEW', 'CLW', 'IMN', 'WTB') then null end,0)

## SETTING UP A CONFERENCE CALL

1. Call 503-230-5050 to reach BPA's Conference Call desk. You need to tell them the date, time, duration and number of people on the conference call. Our normal dial in number is 503-230-3344, so get this number if you can.
2. Have them email the passcode to Dona's email ([dwatson@fpc.org](mailto:dwatson@fpc.org)).
3. Record the conference call and passcode on Dona's scheduler (on the left of her desk).
4. Notify the participants of the call in number and the passcode.

**Attachment D**  
**to**  
**Fish Passage Center Proposal #199403300**  
**Response to ISRP Comments**



## FISH PASSAGE CENTER

2501 SW First Avenue, Suite 230, Portland, OR 97201-4752

Phone: (503) 230-4099

Fax: (503) 230-7559

<http://www.fpc.org/>

e-mail us at [fpcstaff@fpc.org](mailto:fpcstaff@fpc.org)

### MEMORANDUM

TO: All SMP Site Leaders

FROM: Michele Dehart

DATE: February 1, 2002

RE: SMP Repost Rates for the 2001 season

As you know, the 1997 Fish Passage Center audit uncovered a vulnerable area in our data system validation. The audit clearly showed that the remote site personnel were best able to assure the accuracy of the data entered and were best able to validate the data. As a result of the audit, we implemented several new procedures to assure that the data was checked for errors and validated at the sites. The remote site sampling personnel and project leaders maintain primary responsibility for the accuracy of the data.

However, the repost rate cannot be used alone to measure SMP remote site performance. Some reposts occur for reasons beyond the control of SMP personnel, these have been subtracted from the totals below. Meticulous attention to detail by SMP and FPC personnel is the reason most reposts occur. The high repost rate at Little Goose Dam for this period is due to a new crew asking questions and striving to be accurate. Problems encountered in the 2001 season included communication with the Corps., the continued use of non-standard external markings, duplicate external marks from different hatchery releases, and large marking programs at some SMP sites.

The following is a summary of the repost rates for the 2001 season. The repost rate is the number of SMP batches reposted minus the number of batches reposted due to circumstances beyond SMP control, divided by the total number of SMP batches submitted. The 2001 system-wide SMP repost rate is 9.79%, which is down from 10.73% reported for the first half of the 2001 season. In 2000, it was 17%, in 1999 it was 22%, and in 1998 it was 30.9%. Each year, there is measurable improvement in the repost rate due to the efforts of the remote site personnel. Our objective is to keep repost rates below 5%

**2001 SMOLT MONITORING SEASON REPOST  
REPORT  
FOR PERIOD ENDING 7/1/01--BATCH # 01182**

**2001 SMOLT MONITORING SEASON  
REPOST REPORT  
FOR PERIOD 7/1/01--End of Season**

Site	# of Batches Posted	# of batches Reposted	Repost Rate
BO1	33	2	6.06%
BO2	111	7	6.31%
JDA	94	8	8.51%
MCN	91	5	5.49%
LMN	91	16	17.58%
LGR	98	10	10.20%
LGS	91	28	30.77%
RIS	92	8	8.70%
GRN	60	5	8.33%
IMN	91	15	16.48%
LEW	80	3	3.75%
WTB	65	0	0.00%
Totals	997	107	10.73%

Average Error Rate

Site	# of Batches Posted	# of batches Reposted	Repost Rate
BO1	11	2	18.18%
BO2	122	2	1.64%
JDA	78	8	10.26%
MCN	163	11	6.75%
LMN	122	10	8.20%
LGR	122	1	0.82%
LGS	122	29	23.77%
RIS	61	6	9.84%
Totals	801	69	8.61%

Average Error Rate

**2001 SMOLT MONITORING SEASON REPOST  
REPORT  
SEASON TOTALS**

Site	# of Batches Posted	# of batches Reposted	Repost Rate
BO1	44	4	9.09%
BO2	233	9	3.86%
JDA	172	16	9.30%
MCN	254	16	6.30%
LMN	213	26	12.21%
LGR	220	11	5.00%
LGS	213	57	26.76%
RIS	153	14	9.15%
GRN	60	5	8.33%
IMN	91	15	16.48%
LEW	80	3	3.75%
WTB	65	0	0.00%
Totals	1798	176	9.79%

Average Error Rate

**Attachment C**  
**to**  
**Fish Passage Center Proposal #199403300**  
**Response to ISRP Comments**



## FISH PASSAGE CENTER

2501 SW First Avenue, Suite 230, Portland, OR 97201-4752

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January 15, 2002

Mr. Robert Koch  
Ms. Leslie Schaeffer  
Permit Specialist  
National Marine Fisheries Service  
Protected Resources Division  
525 NE Oregon St., Room 500  
Portland, OR 97232-2737

Dear Mr. Koch and Ms. Schaeffer,

This information is being submitted in order to fulfill the 2001 reporting requirements for Section 10 Permit No.1193, as issued to the Fish Passage Center (FPC) for scientific research/monitoring purposes, under the authority of the Endangered Species Act (ESA) of 1973. The permit authorizes the take of listed Snake River spring/summer and fall chinook (*Oncorhynchus tshawytscha*), Snake River steelhead (*O. mykiss*), sockeye (*O. nerka*), Upper Columbia River spring chinook (*O. tshawytscha*), Upper Columbia River steelhead (*O. mykiss*), Mid Columbia River steelhead (*O. mykiss*), Lower Columbia River chinook (*O. tshawytscha*) and Lower Columbia River steelhead (*O. mykiss*) salmon smolts in sampling and tagging activities conducted as part of the regional Smolt Monitoring Program (SMP). These activities were performed in the states of Idaho, Washington, and Oregon in accordance with the 2001 Smolt Monitoring Program (SMP). Listed species take is authorized at Bonneville (BON), John Day (JDA), McNary (MCN), Lower Monumental (LMN), Little Goose (LGS), and Lower Granite (LGR) dams; and at the Snake River (LEW), Salmon River (WTB), and Grande Ronde River (GRN) traps. In addition, Permit No. 1193 specifies the requirement to report the incidental take of ESA listed adults at SMP projects that “fall back” through the juvenile bypass system into the SMP sample tank. This material is sent to you in order to satisfy the requirement stated in section C.1 of the permit, which directs us to provide an annual report by January 15 each year.

The actual 2001 Smolt Monitoring Program dates of sampling at the remote sites are presented in Table 1. The total number of juvenile salmon handled at SMP sites in 2001

is contained in Table 2a. The Smolt Monitoring Program is coordinated with various research projects, with the objective of reducing overall fish handling through the system. Some research projects authorized under separate permits were provided with fish from the SMP sample. This take will be reported under these other permits. The total numbers of fish sampled for the SMP are adjusted to reflect the take associated with these other projects and the actual numbers of fish handled specifically for the SMP are reported in Table 2b.

The estimated listed take of juvenile salmon and the associated incidental listed mortalities for 2001 are summarized in Tables 3 a, b and c. These numbers are to be compared to the estimated permit take proportions contained in Appendix H.2 of the 2000 FCRPS Biological Opinion (December 21, 2000).

We have maintained our goal of minimizing the effects of sampling activities on the listed species. The SMP crews adhered to their sampling protocols, which were established and documented in detail in our permit application. The objective to maintain uniformity and integrity of the procedures and the resulting data sets was accomplished. Fish were anesthetized using quality control procedures to avoid stress in live animals, as outlined in our permit application. Fish condition was recorded at all sites on a routine basis, and the traps were maintained frequently to minimize adverse impacts on sample fish.

The 2001 smolt-monitoring season was a success, with few minor circumstances that affected the monitoring of the outmigration. The year was characterized as having the second lowest runoff volume in the 60-year water record. Flow and spill volumes in the Snake and Columbia River were significantly less than in recent past years.

The NMFS, CZES, developed a May 2, 2001 memo to David Knowles, entitled "Estimation of Percentages of Listed Spring/Summer and Fall Chinook.....", from Michael Schiewe. These percentages were used to estimate all listed take reported in the tables. The associated mortalities of juvenile salmon for the 2001 Smolt Monitoring Program were determined in the same fashion and are reported in Table 3.

Permit compliance was met for the 2001 total take of juvenile listed stocks under Permit No. 1193. No exceedences occurred for the SMP sampling. Incidental mortalities of all listed stocks were well below our 2001 permit allowance.


Gas bubble trauma biological monitoring was conducted as part of the Smolt Monitoring Program. The plan protocols and procedures were reviewed and approved by regional fishery management agencies and state water quality agencies. Stress to the animals was minimized at all sites during the GBT examinations by keeping the smolts submerged in water during the examinations. The GBT sampling program was reduced this year to reduce handling of fish, while maintaining the procurement of sufficient data for management application. Juvenile fish examined for symptoms were obtained from the regular SMP sample at Bonneville Dam in the lower Columbia River. Fish were

netted off the wet separator for biological exams at Lower Granite, Little Goose, Lower Monumental, and McNary dams. The 2001 estimated listed take for GBT monitoring at all sites is included in our total take estimates.

Permit No. 1193 authorizes an incidental take of ESA listed adult salmon that "fallback" through the bypass and collection system into the SMP sampling tank. They are incidentally captured while conducting the juvenile monitoring activities at the sites. The immediate release protocol of all adult and jacks that inadvertently enter the juvenile sample, as specified in Special Condition B.3, was enforced to assure permit compliance. Some, mostly immature, adult salmon were intercepted by the juvenile sampling program. We used the percentages developed by NMFS for determining the numbers of listed juvenile fish in a population for the specific outmigration year and site, and applied them to the adult numbers collected this year. Using this procedure we estimated that the Smolt Monitoring Program sites under Permit No. 1193 intercepted the numbers listed in Table 4. The number of adults intercepted this year was slightly higher than observed in past years. This increase reflects the overall increase in returning adult salmonids observed in the system this year. These fish were routed back to the river without further handling.

To provide you with summaries of our research, we will send you a *Draft 2001 Fish Passage Center Annual Report* in this spring, followed by a final report as soon as it is published.

Sincerely,

A handwritten signature in black ink that reads "Michele DeHart". The signature is written in a cursive, flowing style.

Michele DeHart  
Fish Passage Center Manager



**Table 1. 2001 Start and Stop Dates of Smolt Monitoring Program Remote Sites**

REMOTE SITES	START DATE	STOP DATE
Salmon River Trap (WTB)	03/12	06/08
Grande Ronde River Trap (GRN)	03/12	06/01
Snake River Trap (LEW)	03/12	06/29
Lower Granite Dam	03/26	10/31
Little Goose Dam	04/01	10/31
L. Monumental Dam	04/01	10/31
McNary Dam	03/30	12/11
John Day Dam	04/04	09/17
Bonneville Dam	03/08	10/31

**Table 2a. Total numbers of fish handled through the Smolt Monitoring Program in 2001.**

REMOTE SITES	Chinook Age 1	Chinook Age 0	Sockeye/Kokanee	Steelhead
WTB	12,660	1	24	4,567
GRN	9,049	13	NA	4,357
LEW	527	31	0	5,399
LGR	24,055	14,401	115	51,888
LGS	17,218	3,420	207	16,434
LMN	49,609	743	42	27,096
MCN	34,457	83,113	2,898	14,940
JDA	41,201	12,408	2,902	10,897
BON I & II	22,232	23,930	986	5,628
Total	211,008	138,060	7,174	141,206

**Table 2b. Total numbers of fish handled for the Smolt Monitoring Program. (Research Fish Removed)**

<b>REMOTE SITES</b>	<b>Chinook Age 1</b>	<b>Chinook Age 0</b>	<b>Sockeye/Kokanee</b>	<b>Steelhead</b>
WTB	12,660	1	24	4,567
GRN	9,049	13	NA	4,357
LEW	522	31	0	5,399
LGR	22,675	14,401	115	51,895
LGS	16,011	3,420	207	16,447
LMN	15,733	708	31	10,702
MCN	33,638	29,078	2,676	14,831
JDA	25,295	4,557	2,063	7,775
BON I & II	22,157	23,930	986	5,628
<b>Total</b>	<b>157,740</b>	<b>76,139</b>	<b>6,102</b>	<b>121,601</b>

**Table 3. 2001 Estimated Listed Take of Juvenile Salmon (*Oncorhynchus sp.*) for the Smolt Monitoring Program**

		<b>GRN</b>	<b>LGR</b>	<b>LGO</b>	<b>LMN</b>	<b>MCN</b>
<b>Sockeye</b>				1		
<b>Sp/Su Ch</b>	Listed Hatchery					
	Listed Wild		1			
	Listed Hatchery Jack		4	1	6	2
	Listed Wild Jack		11	3	7	1
<b>Steelhead</b>	Listed Wild	1	2			
	Kelts	1				

**Table 4a/b. Estimated numbers of listed adult salmonids intercepted by the Smolt Monitoring program in 2001.**

Type of Take	2001 Annual Proportion Take by Species/Age of ESA-Listed Snake River Salmon (4a)						
		Sockeye/Juv		Fall/ Juv		SS/ Juv Hatchery	SS/ Juv Wild
Collect for Transport							
Observe/Harass							
Capture/Handle/Release		0.14 Salmon R NA Grande Ronde 0.00 Snake R 0.68 Lwr Granite 1.22 Little Goose 0.18 Lwr Monmtl 0.02 McNary 0.00 John Day 0.00 Bonneville		0.00 Salmon R 0.00 Grande Ronde 0.00 Snake R 0.95 Lwr Granite 0.22 Little Goose 0.02 Lwr Monmtl 0.01 McNary 0.00 John Day 0.00 Bonneville		0.44 Salmon R 0.31 Grande Ronde 0.02 Snake R 0.78 Lwr Granite 0.54 Little Goose 0.99 Lwr Monmtl 0.15 McNary 0.05 John Day 0.01 Bonneville	0.44 Salmon R 0.31 Grande Ronde 0.02 Snake R 0.82 Lwr Granite 0.66 Little Goose 0.82 Lwr Monmtl 0.15 McNary 0.05 John Day 0.01 Bonneville
Capture/ Handle/Tag/Mark and Release						758 Salmon R 553 Grande Ronde 68 Snake R	1844 Salmon R 720 Grande Ronde 35 Snake R
Lethal Take							
Spawning, Dead or Dying							
Other Take							
Indirect Mortality as a result of a direct take		10		22		99	82
Incidental Take							
Incidental Mortality as a result of incidental take							

**2001 Annual Proportion Take by Species/Age of ESA Listed Steelhead (4b)**

Type of Take					
	Juvenile Wild Mid Columbia	Juvenile Wild Lower Columbia	Juvenile Wild Snake River	Juvenile Hatchery Upper Columbia	Juvenile Wild Upper Columbia
Collect for Transport					
Observe/Harass					
Capture/Handle/Release	1.19 McNary 1.24 John Day 0.42 Bonneville	0.72 Bonneville	0.06 Salmon R 0.06 Grande Ronde 0.07 Snake R 0.67 Lwr Granite 0.21 Little Goose 0.17 Lwr Monmtl 0.03 McNary 0.00 John Day 0.00 Bonneville	0.97 McNary 0.12 John Day 0.04 Bonneville	0.87 McNary 0.11 John Day 0.04 Bonneville
Capture/Handle/Tag/Mark and Release			478 Salmon R 602 Grande Ronde 876 Snake R		
Lethal Take					
Spawning, Dead or Dying					
Other Take					
Indirect Mortality as a result of a direct take	7	0	48	42	13
Incidental Take					
Incidental Mortality as a result of incidental take					

**Attachment B**  
**to**  
**Fish Passage Center Proposal #199403300**  
Response to ISRP Comments

# **Bi-Monthly FPC Report**

Prepared By:

**Deidre Wood**

**Fish Passage Center**

On 8/29/02, 12:59:18

## Table of Contents

<b>General Statistics</b>	<b>5</b>	
<b>Most Requested Pages</b>	<b>6</b>	
<b>Most Requested Pages</b>	<b>6</b>	
<b>Least Requested Pages</b>	<b>8</b>	
<b>Least Requested Pages</b>	<b>8</b>	
<b>Top Entry Pages</b>	<b>9</b>	
<b>Top Entry Pages</b>	<b>9</b>	
<b>Top Entry Requests</b>	<b>10</b>	
<b>Top Entry Requests</b>	<b>10</b>	
<b>Top Exit Pages</b>	<b>11</b>	
<b>Top Exit Pages</b>	<b>11</b>	
<b>Single Access Pages</b>	<b>12</b>	
<b>Single Access Pages</b>	<b>12</b>	
<b>Most Accessed Directories</b>	<b>13</b>	
<b>Most Accessed Directories</b>	<b>13</b>	
<b>Top Paths Through Site</b>	<b>14</b>	
<b>Top Paths Through Site</b>	<b>14</b>	
<b>Most Downloaded Files</b>	<b>15</b>	
<b>Most Downloaded Files</b>	<b>15</b>	
<b>Most Downloaded File Types</b>	<b>16</b>	
<b>Most Downloaded File Types</b>	<b>16</b>	
<b>Dynamic Pages &amp; Forms</b>	<b>17</b>	
<b>Dynamic Pages &amp; Forms</b>	<b>17</b>	
<b>Number of Users Per Number of Visits</b>	<b>18</b>	
<b>Number of Users Per Number of Visits</b>	<b>18</b>	
<b>New vs. Returning Users</b>	<b>19</b>	
<b>New vs. Returning Users</b>	<b>19</b>	
<b>Top Users</b>	<b>20</b>	
<b>Top Users</b>	<b>20</b>	
<b>Most Active Organizations</b>	<b>21</b>	
<b>Most Active Organizations</b>	<b>21</b>	
<b>Organization Breakdown</b>	<b>22</b>	
<b>Organization Breakdown</b>	<b>22</b>	
<b>Summary of Activity for Report Period</b>	<b>23</b>	
<b>Summary of Activity for Report Period</b>	<b>23</b>	
<b>Summary of Activity by Time Increment</b>	<b>24</b>	
<b>Summary of Activity by Time Increment</b>	<b>24</b>	
<b>Activity Level by Day of the Week</b>	<b>25</b>	
<b>Activity Level by Day of the Week</b>	<b>25</b>	
<b>Activity Level by Hour of the Day</b>	<b>26</b>	
<b>Activity Level by Hour of the Day</b>	<b>26</b>	
<b>Technical Statistics and Analysis</b>	<b>28</b>	
<b>Technical Statistics and Analysis</b>	<b>28</b>	
<b>Dynamic Pages &amp; Forms Errors</b>	<b>29</b>	
<b>Dynamic Pages &amp; Forms Errors</b>	<b>29</b>	
<b>Client Errors</b>	<b>30</b>	
<b>Client Errors</b>	<b>30</b>	
<b>Page Not Found (404) Errors</b>	<b>31</b>	
<b>Page Not Found (404) Errors</b>	<b>31</b>	
<b>Server Errors</b>	<b>32</b>	
<b>Server Errors</b>	<b>32</b>	
<b>Top Referring Sites</b>	<b>33</b>	
<b>Top Referring Sites</b>	<b>33</b>	

Top Referring URLs	34
Top Referring URLs	34
Top Search Engines	35
Top Search Engines	35
Top Search Phrases	39
Top Search Phrases	39
Top Search Keywords	41
Top Search Keywords	41
Most Used Browsers	44
Most Used Browsers	44
Netscape Browsers	45
Netscape Browsers	45
Microsoft Explorer Browsers	46
Microsoft Explorer Browsers	46
Visiting Spiders	47
Visiting Spiders	47
Most Used Platforms	48
Most Used Platforms	48



## **General Statistics**

The User Profile by Regions graph identifies the general location of the visitors to your Web site. The General Statistics table includes statistics on the total activity for this web site during the designated time frame.

<b>General Statistics</b>	
<b>Date &amp; Time This Report was Generated</b>	Friday August 16, 2002 - 07:20:57
<b>Timeframe</b>	08/01/02 00:00:00 - 08/15/02 23:59:59
<b>Number of Hits for Home Page</b>	4,292
<b>Number of Successful Hits for Entire Site</b>	214,636
<b>Number of Page Views (Impressions)</b>	31,171
<b>Number of User Sessions</b>	15,420
<b>User Sessions from United States</b>	73.41%
<b>International User Sessions</b>	1.69%
<b>User Sessions of Unknown Origin</b>	24.89%
<b>Average Number of Hits Per Day</b>	14,309
<b>Average Number of Page Views Per Day</b>	2,078
<b>Average Number of User Sessions Per Day</b>	1,028
<b>Average User Session Length</b>	00:04:02
<b>Number of Unique Users</b>	7,082
<b>Number of Users Who Visited Once</b>	4,663
<b>Number of Users Who Visited More Than Once</b>	2,419

## Most Requested Pages

This section identifies the most popular web site pages and how often they were accessed. The average time a user spends viewing a page is also indicated in the table.

Most Requested Pages					
	Pages	Views	% of Total Views	User Sessions	Avg. Time Viewed
1	ADULTS COUNT <a href="http://www.fpc.org/CurrentDaily/7day-ytd_adults.htm">http://www.fpc.org/CurrentDaily/7day-ytd_adults.htm</a>	8,260	26.49%	7,812	00:02:34
2	Fish Passage Center Homepage - Salmon and Steelhead data for the Columbia and Sn <a href="http://www.fpc.org/">http://www.fpc.org/</a>	4,292	13.76%	3,875	00:01:02
3	Fish Passage Center Adult Return Data <a href="http://www.fpc.org/adult.html">http://www.fpc.org/adult.html</a>	3,378	10.83%	3,172	00:00:24
4	FPC 2002 SORS <a href="http://www.fpc.org/sors/2002-SOR/2002_sors.htm">http://www.fpc.org/sors/2002-SOR/2002_sors.htm</a>	3,075	9.86%	110	00:00:10
5	<a href="http://www.fpc.org/CurrentDaily/adltpass.txt">http://www.fpc.org/CurrentDaily/adltpass.txt</a>	1,266	4.06%	1,192	00:01:06
6	Fish Passage Center's Columbia and Snake River Adult Passage Graph for 2002, 200 <a href="http://www.fpc.org/adultqueries/Adult_Graph.asp">http://www.fpc.org/adultqueries/Adult_Graph.asp</a>	1,230	3.94%	551	00:01:02
7	Fish Passage Center's Columbia and Snake River Adult Passage Graph for 2002, 200 <a href="http://www.fpc.org/adultqueries/Adult_Graph_Submit.asp">http://www.fpc.org/adultqueries/Adult_Graph_Submit.asp</a>	671	2.15%	580	00:00:14
8	Weekly Reports <a href="http://www.fpc.org/weekrprt/wr2002/2002wr.html">http://www.fpc.org/weekrprt/wr2002/2002wr.html</a>	408	1.3%	387	00:02:34
9	<a href="http://www.fpc.org/CurrentDaily/flowspil.txt">http://www.fpc.org/CurrentDaily/flowspil.txt</a>	407	1.3%	379	00:01:19
10	2002 QA Data for COE TDGS Monitoring <a href="http://www.fpc.org/tempgraphs/tempgraph.asp">http://www.fpc.org/tempgraphs/tempgraph.asp</a>	348	1.11%	253	00:01:35
11	2000 Real Time versus Historic Temperature Graphs <a href="http://www.fpc.org/tempgraphs/tempsubmit.htm">http://www.fpc.org/tempgraphs/tempsubmit.htm</a>	322	1.03%	305	00:00:17
12	River Data <a href="http://www.fpc.org/rivrdata.html">http://www.fpc.org/rivrdata.html</a>	316	1.01%	306	00:00:35
13	<a href="http://www.fpc.org/adultqueries/Adult_Table_2002.asp">http://www.fpc.org/adultqueries/Adult_Table_2002.asp</a>	287	0.92%	141	00:00:55
14	Data Reporting Sites <a href="http://www.fpc.org/fishway/map.html">http://www.fpc.org/fishway/map.html</a>	279	0.89%	261	00:00:30
15	Fish Passage Center's Columbia and Snake River Adult Passage Data <a href="http://www.fpc.org/adultqueries/Adult_Table_Submit.asp">http://www.fpc.org/adultqueries/Adult_Table_Submit.asp</a>	278	0.89%	249	00:00:53
16	<a href="http://www.fpc.org/robots.txt">http://www.fpc.org/robots.txt</a>	277	0.88%	259	00:00:55
17	Smolt Data <a href="http://www.fpc.org/smpdata.html">http://www.fpc.org/smpdata.html</a>	245	0.78%	223	00:00:27
18	<a href="http://www.fpc.org/CurrentDaily/passindx.txt">http://www.fpc.org/CurrentDaily/passindx.txt</a>	215	0.68%	176	00:02:22
19	What's New <a href="http://www.fpc.org/whats_new.htm">http://www.fpc.org/whats_new.htm</a>	196	0.62%	180	00:01:11
20	Bull Trout <a href="http://www.fpc.org/bulltrout/BullTrout.htm">http://www.fpc.org/bulltrout/BullTrout.htm</a>	184	0.59%	164	00:01:55

<b>Most Requested Pages</b>					
	<b>Pages</b>	<b>Views</b>	<b>% of Total Views</b>	<b>User Sessions</b>	<b>Avg. Time Viewed</b>
21	<a href="http://www.fpc.org/links.html">http://www.fpc.org/links.html</a>	181	0.58%	166	00:03:29
22	<a href="http://www.fpc.org/adultqueries/Adult_Table.asp">http://www.fpc.org/adultqueries/Adult_Table.asp</a>	143	0.45%	60	00:01:03
23	Bonneville Dam <a href="http://www.fpc.org/fishway/bon.html">http://www.fpc.org/fishway/bon.html</a>	113	0.36%	109	00:00:50
24	<a href="http://www.fpc.org/CurrentDaily/adultpassage.htm">http://www.fpc.org/CurrentDaily/adultpassage.htm</a>	112	0.35%	102	00:02:02
25	Hatchery Release Information <a href="http://www.fpc.org/Hatchery/Hatchery.htm">http://www.fpc.org/Hatchery/Hatchery.htm</a>	111	0.35%	106	00:02:06
26	FPC SiteMap <a href="http://www.fpc.org/sitemap.html">http://www.fpc.org/sitemap.html</a>	100	0.32%	97	00:01:42
27	2001 Passage Index Graphs from Fish Passage Center <a href="http://www.fpc.org/Passgraphs/passgraph.asp">http://www.fpc.org/Passgraphs/passgraph.asp</a>	95	0.3%	43	00:01:49
28	Historic Adult Counts <a href="http://www.fpc.org/adult_history/adultsites.html">http://www.fpc.org/adult_history/adultsites.html</a>	90	0.28%	83	00:00:20
29	Hatchery Query by Agency - Results <a href="http://www.fpc.org/Hatchery/HatcheryAgency_Results.asp">http://www.fpc.org/Hatchery/HatcheryAgency_Results.asp</a>	79	0.25%	15	00:00:37
30	<a href="http://www.fpc.org/fpc_docs/2001JuvSalMigr_files/outline.htm">http://www.fpc.org/fpc_docs/2001JuvSalMigr_files/outline.htm</a>	77	0.24%	28	00:00:15
31	Bonneville Dam YTD Totals <a href="http://www.fpc.org/adult_history/YTD-BON.htm">http://www.fpc.org/adult_history/YTD-BON.htm</a>	76	0.24%	72	00:02:27
32	Ives Island <a href="http://www.fpc.org/ives_island.htm">http://www.fpc.org/ives_island.htm</a>	74	0.23%	70	00:01:28
33	FPC Documents <a href="http://www.fpc.org/fpc_docs.htm">http://www.fpc.org/fpc_docs.htm</a>	70	0.22%	64	00:02:29
34	The Dalles Dam <a href="http://www.fpc.org/fishway/tda.html">http://www.fpc.org/fishway/tda.html</a>	67	0.21%	66	00:01:07
35	Wells Dam <a href="http://www.fpc.org/fishway/wel.html">http://www.fpc.org/fishway/wel.html</a>	65	0.2%	61	00:00:36
36	Real Time Ives Island Water Elevations and Temperature Data <a href="http://www.fpc.org/ivesisland.htm">http://www.fpc.org/ivesisland.htm</a>	64	0.2%	53	00:02:27
37	Lower Granite Dam <a href="http://www.fpc.org/fishway/lgr.html">http://www.fpc.org/fishway/lgr.html</a>	64	0.2%	61	00:00:34
38	Biography <a href="http://www.fpc.org/Biography.html">http://www.fpc.org/Biography.html</a>	63	0.2%	60	00:01:58
39	<a href="http://www.fpc.org/CurrentDaily/dgassum.txt">http://www.fpc.org/CurrentDaily/dgassum.txt</a>	59	0.18%	41	00:01:20
40	<a href="http://www.fpc.org/adultqueries/Adult_Table_10yr.asp">http://www.fpc.org/adultqueries/Adult_Table_10yr.asp</a>	58	0.18%	35	00:01:21
	<b>Sub Total For the Page Views Above</b>	27,695	88.84%	N/A	N/A
	<b>Total For the Log File</b>	<b>31,171</b>	<b>100%</b>	<b>N/A</b>	<b>N/A</b>

## Least Requested Pages

This section identifies the least popular pages on your Web site, and how often they were accessed.

Least Requested Pages				
	Pages	Views	% of Total Views	User Sessions
1	SYSTEM OPERATIONAL REQUEST:#98-2 <a href="http://www.fpc.org/sors/1999-SOR/99-24.htm">http://www.fpc.org/sors/1999-SOR/99-24.htm</a>	1	0%	1
2	SYSTEM OPERATIONAL REQUEST:#98-2 <a href="http://www.fpc.org/sors/1999-SOR/92-99.html">http://www.fpc.org/sors/1999-SOR/92-99.html</a>	1	0%	1
3	<a href="http://www.fpc.org/sors/1999-SOR/SOR_99-C2.html">http://www.fpc.org/sors/1999-SOR/SOR_99-C2.html</a>	1	0%	1
4	SYSTEM OPERATIONAL REQUEST:#99-26 <a href="http://www.fpc.org/sors/1999-SOR/99-26.htm">http://www.fpc.org/sors/1999-SOR/99-26.htm</a>	1	0%	1
5	SYSTEM OPERATIONAL REQUEST:#99-25 <a href="http://www.fpc.org/sors/1999-SOR/99-25.htm">http://www.fpc.org/sors/1999-SOR/99-25.htm</a>	1	0%	1
6	SYSTEM OPERATIONAL REQUEST:#98-2 <a href="http://www.fpc.org/sors/1999-SOR/147-99.html">http://www.fpc.org/sors/1999-SOR/147-99.html</a>	1	0%	1
7	SYSTEM OPERATIONAL REQUEST:#99-29 <a href="http://www.fpc.org/sors/1999-SOR/99-29.htm">http://www.fpc.org/sors/1999-SOR/99-29.htm</a>	1	0%	1
8	CRITFC SOR C-7 <a href="http://www.fpc.org/sors/1999-SOR/Sor_99c7.htm">http://www.fpc.org/sors/1999-SOR/Sor_99c7.htm</a>	1	0%	1
9	SYSTEM OPERATIONAL REQUEST:#99-21 <a href="http://www.fpc.org/sors/1999-SOR/99-21.htm">http://www.fpc.org/sors/1999-SOR/99-21.htm</a>	1	0%	1
10	SYSTEM OPERATIONAL REQUEST:#98-2 <a href="http://www.fpc.org/sors/1999-SOR/99-28.htm">http://www.fpc.org/sors/1999-SOR/99-28.htm</a>	1	0%	1

## Top Entry Pages

This section identifies the first page viewed when a user visits this site. This is most likely your home page but, in some cases, it may also be specific URLs that users enter to access a particular page directly. The percentages refer to the total number of user sessions that started with a valid Document Type. If the session started on a document with a different type (such as a graphic or sound file), the file is not be counted as an Entry Page, and the session is not counted in the total.

Top Entry Pages			
	File	% of Total	User Sessions
1	ADULTS COUNT <a href="http://www.fpc.org/CurrentDaily/7day-ytd_adults.htm">http://www.fpc.org/CurrentDaily/7day-ytd_adults.htm</a>	41.64%	5,397
2	Fish Passage Center Homepage - Salmon and Steelhead data for the Columbia and Sn <a href="http://www.fpc.org/">http://www.fpc.org/</a>	27.76%	3,598
3	Fish Passage Center Adult Return Data <a href="http://www.fpc.org/adult.html">http://www.fpc.org/adult.html</a>	11.02%	1,428
4	<a href="http://www.fpc.org/CurrentDaily/adltpass.txt">http://www.fpc.org/CurrentDaily/adltpass.txt</a>	2.8%	363
5	<a href="http://www.fpc.org/robots.txt">http://www.fpc.org/robots.txt</a>	1.75%	227
6	<a href="http://www.fpc.org/CurrentDaily/flowspil.txt">http://www.fpc.org/CurrentDaily/flowspil.txt</a>	0.82%	107
7	Fish Passage Center's Columbia and Snake River Adult Passage Graph for 2002, 200 <a href="http://www.fpc.org/adultqueries/Adult_Graph_Submit.asp">http://www.fpc.org/adultqueries/Adult_Graph_Submit.asp</a>	0.81%	105
8	Weekly Reports <a href="http://www.fpc.org/weekrprt/wr2002/2002wr.html">http://www.fpc.org/weekrprt/wr2002/2002wr.html</a>	0.67%	87
9	River Data <a href="http://www.fpc.org/rivrdata.html">http://www.fpc.org/rivrdata.html</a>	0.65%	85
10	Data Reporting Sites <a href="http://www.fpc.org/fishway/map.html">http://www.fpc.org/fishway/map.html</a>	0.47%	62
11	2000 Real Time versus Historic Temperature Graphs <a href="http://www.fpc.org/tempgraphs/tempsubmit.htm">http://www.fpc.org/tempgraphs/tempsubmit.htm</a>	0.44%	58
12	<a href="http://www.fpc.org/CurrentDaily/passindx.txt">http://www.fpc.org/CurrentDaily/passindx.txt</a>	0.42%	55
13	What's New <a href="http://www.fpc.org/whats_new.htm">http://www.fpc.org/whats_new.htm</a>	0.4%	52
14	Fish Passage Center's Columbia and Snake River Adult Passage Data <a href="http://www.fpc.org/adultqueries/Adult_Table_Submit.asp">http://www.fpc.org/adultqueries/Adult_Table_Submit.asp</a>	0.36%	47
15	FPC 2002 SORS <a href="http://www.fpc.org/sors/2002-SOR/2002_sors.htm">http://www.fpc.org/sors/2002-SOR/2002_sors.htm</a>	0.35%	46
16	<a href="http://www.fpc.org/links.html">http://www.fpc.org/links.html</a>	0.35%	46
17	Smolt Data <a href="http://www.fpc.org/smpdata.html">http://www.fpc.org/smpdata.html</a>	0.3%	40
18	Bull Trout <a href="http://www.fpc.org/bulltrout/BullTrout.htm">http://www.fpc.org/bulltrout/BullTrout.htm</a>	0.3%	39
19	FPC SiteMap <a href="http://www.fpc.org/sitemap.html">http://www.fpc.org/sitemap.html</a>	0.25%	33
20	Hatchery Release Information <a href="http://www.fpc.org/Hatchery/Hatchery.htm">http://www.fpc.org/Hatchery/Hatchery.htm</a>	0.24%	32
	<b>Total For the Pages Above</b>	<b>91.88%</b>	<b>11,907</b>

## Top Entry Requests

This section identifies the first hit from a user visiting this site. This is most likely the home page but, in some cases, it may also be specific URLs that users enter to access a particular file directly. The percentages refer to the total number of user sessions.

Top Entry Requests			
	File	% of Total	User Sessions
1	Fish Passage Center Homepage - Salmon and Steelhead data for the Columbia and Sn <a href="http://www.fpc.org/">http://www.fpc.org/</a>	22.76%	3,510
2	ADULTS COUNT <a href="http://www.fpc.org/CurrentDaily/7day-ytd_adults.htm">http://www.fpc.org/CurrentDaily/7day-ytd_adults.htm</a>	19.96%	3,078
3	<a href="http://www.fpc.org/CurrentDaily/table.css">http://www.fpc.org/CurrentDaily/table.css</a>	19.26%	2,971
4	Fish Passage Center Adult Return Data <a href="http://www.fpc.org/adult.html">http://www.fpc.org/adult.html</a>	7.58%	1,169
5	<a href="http://www.fpc.org/_themes/fpc-dw/oceanwater2.jpg">http://www.fpc.org/_themes/fpc-dw/oceanwater2.jpg</a>	2.33%	360
6	<a href="http://www.fpc.org/CurrentDaily/adltpass.txt">http://www.fpc.org/CurrentDaily/adltpass.txt</a>	1.95%	302
7	<a href="http://www.fpc.org/robots.txt">http://www.fpc.org/robots.txt</a>	1.46%	226
8	<a href="http://www.fpc.org/ICONS/CLEARDOT.GIF">http://www.fpc.org/ICONS/CLEARDOT.GIF</a>	1.31%	203
9	<a href="http://www.fpc.org/_derived/Index.htm_cmp_fpc-dw010_bnr.gif">http://www.fpc.org/_derived/Index.htm_cmp_fpc-dw010_bnr.gif</a>	0.62%	97
10	Fish Passage Center's Columbia and Snake River Adult Passage Graph for 2002, 200 <a href="http://www.fpc.org/adultqueries/Adult_Graph_Submit.asp">http://www.fpc.org/adultqueries/Adult_Graph_Submit.asp</a>	0.59%	92
11	<a href="http://www.fpc.org/_derived/whats_new.htm_cmp_fpc-dw010_vbtn.gif">http://www.fpc.org/_derived/whats_new.htm_cmp_fpc-dw010_vbtn.gif</a>	0.59%	91
12	<a href="http://www.fpc.org/CurrentDaily/flowspil.txt">http://www.fpc.org/CurrentDaily/flowspil.txt</a>	0.55%	85
13	<a href="http://www.fpc.org/_derived/SMPDATA.html_cmp_fpc-dw010_vbtn_a.gif">http://www.fpc.org/_derived/SMPDATA.html_cmp_fpc-dw010_vbtn_a.gif</a>	0.46%	71
14	<a href="http://www.fpc.org/_derived/adult.html_cmp_fpc-dw010_vbtn.gif">http://www.fpc.org/_derived/adult.html_cmp_fpc-dw010_vbtn.gif</a>	0.43%	67
15	<a href="http://www.fpc.org/_derived/whats_new.htm_cmp_fpc-dw010_vbtn_a.gif">http://www.fpc.org/_derived/whats_new.htm_cmp_fpc-dw010_vbtn_a.gif</a>	0.4%	62
16	<a href="http://www.fpc.org/_derived/adult.html_cmp_fpc-dw010_vbtn_a.gif">http://www.fpc.org/_derived/adult.html_cmp_fpc-dw010_vbtn_a.gif</a>	0.39%	61
17	<a href="http://www.fpc.org/_derived/SMPDATA.html_cmp_fpc-dw010_vbtn.gif">http://www.fpc.org/_derived/SMPDATA.html_cmp_fpc-dw010_vbtn.gif</a>	0.38%	59
18	<a href="http://www.fpc.org/bulltrout/_derived/BullTrout.htm_cmp_fpc-dw010_vbtn.gif">http://www.fpc.org/bulltrout/_derived/BullTrout.htm_cmp_fpc-dw010_vbtn.gif</a>	0.37%	58
19	<a href="http://www.fpc.org/_derived/rivrdata.html_cmp_fpc-dw010_vbtn.gif">http://www.fpc.org/_derived/rivrdata.html_cmp_fpc-dw010_vbtn.gif</a>	0.36%	56
20	<a href="http://www.fpc.org/sors/2002-SOR/_derived/2002_sors.htm_cmp_fpc-dw010_vbtn.gif">http://www.fpc.org/sors/2002-SOR/_derived/2002_sors.htm_cmp_fpc-dw010_vbtn.gif</a>	0.35%	55
	<b>Total For the Requests Above</b>	<b>82.18%</b>	<b>12,673</b>

## Top Exit Pages

This section identifies the pages users were on when they left the site. The percentages refer to the total number of user sessions that started with a valid Document Type. If the session started on a document with a different type (such as a graphic or sound file), the file is not counted as an Exit Page, and the session is not counted in the total.

<b>Top Exit Pages</b>			
	<b>Pages</b>	<b>% of Total</b>	<b>User Sessions</b>
1	ADULTS COUNT <a href="http://www.fpc.org/CurrentDaily/7day-ytd_adults.htm">http://www.fpc.org/CurrentDaily/7day-ytd_adults.htm</a>	52.9%	6,856
2	Fish Passage Center Homepage - Salmon and Steelhead data for the Columbia and Sn <a href="http://www.fpc.org/">http://www.fpc.org/</a>	14.13%	1,832
3	<a href="http://www.fpc.org/CurrentDaily/adltpass.txt">http://www.fpc.org/CurrentDaily/adltpass.txt</a>	5.3%	687
4	Fish Passage Center's Columbia and Snake River Adult Passage Graph for 2002, 200 <a href="http://www.fpc.org/adultqueries/Adult_Graph.asp">http://www.fpc.org/adultqueries/Adult_Graph.asp</a>	3.11%	403
5	Fish Passage Center Adult Return Data <a href="http://www.fpc.org/adult.html">http://www.fpc.org/adult.html</a>	3.04%	394
6	<a href="http://www.fpc.org/CurrentDaily/flowspil.txt">http://www.fpc.org/CurrentDaily/flowspil.txt</a>	1.89%	245
7	Weekly Reports <a href="http://www.fpc.org/weekrprt/wr2002/2002wr.html">http://www.fpc.org/weekrprt/wr2002/2002wr.html</a>	1.47%	191
8	2002 QA Data for COE TDGS Monitoring <a href="http://www.fpc.org/tempgraphs/tempgraph.asp">http://www.fpc.org/tempgraphs/tempgraph.asp</a>	1.26%	164
9	<a href="http://www.fpc.org/robots.txt">http://www.fpc.org/robots.txt</a>	1.21%	157
10	<a href="http://www.fpc.org/links.html">http://www.fpc.org/links.html</a>	0.86%	112
	<b>Total For the Pages Above (only sessions starting on a valid document type are included)</b>	<b>85.2%</b>	<b>11,041</b>

## Single Access Pages

This section identifies the pages on the site that visitors access and exit without viewing any other page. The percentages refer to the total number of user sessions that started with a valid Document Type. If the session started on a document with a different type (such as a graphic or sound file), the file is not counted as a Single Access Page, and the session is not counted in the total

Single Access Pages			
	Pages	% of Total	User Sessions
1	ADULTS COUNT <a href="http://www.fpc.org/CurrentDaily/7day-ytd_adults.htm">http://www.fpc.org/CurrentDaily/7day-ytd_adults.htm</a>	59.82%	5,064
2	Fish Passage Center Homepage - Salmon and Steelhead data for the Columbia and Sn <a href="http://www.fpc.org/">http://www.fpc.org/</a>	19.83%	1,679
3	Fish Passage Center Adult Return Data <a href="http://www.fpc.org/adult.html">http://www.fpc.org/adult.html</a>	3.5%	297
4	<a href="http://www.fpc.org/CurrentDaily/adltpass.txt">http://www.fpc.org/CurrentDaily/adltpass.txt</a>	3.39%	287
5	<a href="http://www.fpc.org/robots.txt">http://www.fpc.org/robots.txt</a>	1.59%	135
6	<a href="http://www.fpc.org/CurrentDaily/flowspil.txt">http://www.fpc.org/CurrentDaily/flowspil.txt</a>	0.93%	79
7	<a href="http://www.fpc.org/CurrentDaily/passindx.txt">http://www.fpc.org/CurrentDaily/passindx.txt</a>	0.49%	42
8	FPC 2002 SORS <a href="http://www.fpc.org/sors/2002-SOR/2002_sors.htm">http://www.fpc.org/sors/2002-SOR/2002_sors.htm</a>	0.48%	41
9	Weekly Reports <a href="http://www.fpc.org/weekrprt/wr2002/2002wr.html">http://www.fpc.org/weekrprt/wr2002/2002wr.html</a>	0.47%	40
10	<a href="http://www.fpc.org/links.html">http://www.fpc.org/links.html</a>	0.34%	29
11	2000 Real Time versus Historic Temperature Graphs <a href="http://www.fpc.org/tempgraphs/tempsubmit.htm">http://www.fpc.org/tempgraphs/tempsubmit.htm</a>	0.3%	26
12	Real Time Ives Island Water Elevations and Temperature Data <a href="http://www.fpc.org/ivesisland.htm">http://www.fpc.org/ivesisland.htm</a>	0.29%	25
13	Rocky Reach Dam <a href="http://www.fpc.org/fishway/rrh.html">http://www.fpc.org/fishway/rrh.html</a>	0.27%	23
14	<a href="http://www.fpc.org/CurrentDaily/7day-ytd_adults.txt">http://www.fpc.org/CurrentDaily/7day-ytd_adults.txt</a>	0.25%	22
15	Data Reporting Sites <a href="http://www.fpc.org/fishway/map.html">http://www.fpc.org/fishway/map.html</a>	0.23%	20
16	Smolt Data <a href="http://www.fpc.org/smpdata.html">http://www.fpc.org/smpdata.html</a>	0.23%	20
17	Bull Trout <a href="http://www.fpc.org/bulltrout/BullTrout.htm">http://www.fpc.org/bulltrout/BullTrout.htm</a>	0.22%	19
18	River Data <a href="http://www.fpc.org/rivrdata.html">http://www.fpc.org/rivrdata.html</a>	0.22%	19
19	McNary Dam <a href="http://www.fpc.org/fishway/mcn.html">http://www.fpc.org/fishway/mcn.html</a>	0.21%	18
20	What's New <a href="http://www.fpc.org/whats_new.htm">http://www.fpc.org/whats_new.htm</a>	0.21%	18
	<b>Total For the Pages Above</b>	<b>93.36%</b>	<b>7,903</b>



## Most Accessed Directories

This section analyzes accesses to the directories of the site. This information can be useful in determining the types of data most often requested.

Most Accessed Directories						
	Path to Directory	Hits	% of Total Hits	Non Cached %	Non Cached K Xferred	User Sessions
1	<a href="http://www.fpc.org/_derived">http://www.fpc.org/_derived</a>	95,556	44.52 %	57.34%	150,314	5,133
2	<a href="http://www.fpc.org/CurrentDaily">http://www.fpc.org/CurrentDaily</a>	18,064	8.41%	70.33%	762,178	9,777
3	<a href="http://www.fpc.org/_themes">http://www.fpc.org/_themes</a>	13,858	6.45%	59.72%	8,900	4,708
4	<a href="http://www.fpc.org/sors">http://www.fpc.org/sors</a>	13,059	6.08%	55.74%	53,873	4,162
5	<a href="http://www.fpc.org/weekrprt">http://www.fpc.org/weekrprt</a>	12,055	5.61%	65.9%	95,103	4,002
6	<a href="http://www.fpc.org/fishway">http://www.fpc.org/fishway</a>	10,735	5%	62.93%	26,911	4,144
7	<a href="http://www.fpc.org/">http://www.fpc.org/</a>	10,162	4.73%	68.11%	187,398	6,086
8	<a href="http://www.fpc.org/Hatchery">http://www.fpc.org/Hatchery</a>	9,726	4.53%	61.13%	92,848	3,938
9	<a href="http://www.fpc.org/bulltrout">http://www.fpc.org/bulltrout</a>	8,590	4%	61.22%	38,711	3,243
10	<a href="http://www.fpc.org/ICONS">http://www.fpc.org/ICONS</a>	4,828	2.24%	59.85%	3,012	4,068
11	<a href="http://www.fpc.org/images">http://www.fpc.org/images</a>	3,744	1.74%	60.49%	8,694	2,793
12	<a href="http://www.fpc.org/fpc_docs">http://www.fpc.org/fpc_docs</a>	3,545	1.65%	83.13%	193,300	486
13	<a href="http://www.fpc.org/graphics">http://www.fpc.org/graphics</a>	2,747	1.27%	64.87%	13,683	2,471
14	<a href="http://www.fpc.org/adultqueries">http://www.fpc.org/adultqueries</a>	2,673	1.24%	100%	31,344	783
15	<a href="http://www.fpc.org/DataReqs">http://www.fpc.org/DataReqs</a>	1,869	0.87%	98.18%	154,577	894

## Top Paths Through Site

This section identifies the paths people most often follow when visiting the site. The path begins at the starting page and shows the next six consecutive pages viewed.

Top Paths Through Site by Starting Page			
Starting Page	Paths from Start	% of Total	User Sessions
All Entry Pages	1.ADULTS COUNT <a href="http://www.fpc.org/CurrentDaily/7day-ytd_adults.htm">http://www.fpc.org/CurrentDaily/7day-ytd_adults.htm</a>	22.41%	2904
	1.Fish Passage Center Homepage - Salmon and Steelhead data for the Columbia and Sn <a href="http://www.fpc.org/">http://www.fpc.org/</a>	12.63%	1637
	1.Fish Passage Center Homepage - Salmon and Steelhead data for the Columbia and Sn <a href="http://www.fpc.org/">http://www.fpc.org/</a> 2.Fish Passage Center Adult Return Data <a href="http://www.fpc.org/adult.html">http://www.fpc.org/adult.html</a> 3.ADULTS COUNT <a href="http://www.fpc.org/CurrentDaily/7day-ytd_adults.htm">http://www.fpc.org/CurrentDaily/7day-ytd_adults.htm</a>	4.86%	630
	1.Fish Passage Center Adult Return Data <a href="http://www.fpc.org/adult.html">http://www.fpc.org/adult.html</a> 2.ADULTS COUNT <a href="http://www.fpc.org/CurrentDaily/7day-ytd_adults.htm">http://www.fpc.org/CurrentDaily/7day-ytd_adults.htm</a>	3.38%	438
	1.Fish Passage Center Adult Return Data <a href="http://www.fpc.org/adult.html">http://www.fpc.org/adult.html</a>	2.12%	276
	1. <a href="http://www.fpc.org/CurrentDaily/adltpass.txt">http://www.fpc.org/CurrentDaily/adltpass.txt</a>	2.02%	263
	1.Fish Passage Center Homepage - Salmon and Steelhead data for the Columbia and Sn <a href="http://www.fpc.org/">http://www.fpc.org/</a> 2.Fish Passage Center Adult Return Data <a href="http://www.fpc.org/adult.html">http://www.fpc.org/adult.html</a> 3. <a href="http://www.fpc.org/CurrentDaily/adltpass.txt">http://www.fpc.org/CurrentDaily/adltpass.txt</a>	1.11%	145
	1. <a href="http://www.fpc.org/robots.txt">http://www.fpc.org/robots.txt</a>	1.03%	134
	1.Fish Passage Center Adult Return Data <a href="http://www.fpc.org/adult.html">http://www.fpc.org/adult.html</a> 2. <a href="http://www.fpc.org/CurrentDaily/adltpass.txt">http://www.fpc.org/CurrentDaily/adltpass.txt</a>	0.84%	109
	1.Fish Passage Center Homepage - Salmon and Steelhead data for the Columbia and Sn <a href="http://www.fpc.org/">http://www.fpc.org/</a> 2.Fish Passage Center Adult Return Data <a href="http://www.fpc.org/adult.html">http://www.fpc.org/adult.html</a> 3.ADULTS COUNT <a href="http://www.fpc.org/CurrentDaily/7day-ytd_adults.htm">http://www.fpc.org/CurrentDaily/7day-ytd_adults.htm</a> 4.Fish Passage Center's Columbia and Snake River Adult Passage Graph for 2002, 200 <a href="http://www.fpc.org/adultqueries/Adult_Graph_Submit.asp">http://www.fpc.org/adultqueries/Adult_Graph_Submit.asp</a> 5.Fish Passage Center's Columbia and Snake River Adult Passage Graph for 2002, 200 <a href="http://www.fpc.org/adultqueries/Adult_Graph.asp">http://www.fpc.org/adultqueries/Adult_Graph.asp</a>	0.73%	95

## Most Downloaded Files

This section identifies the most popular file downloads for the site. If an error occurred during the transfer, that transfer is not counted.

<b>Most Downloaded Files</b>				
	<b>File</b>	<b>No. of Downloads</b>	<b>% of Total Downloads</b>	<b>Session Downloads</b>
1	<a href="http://www.fpc.org/fpc_docs/Annual_FPC_Report/Final-FPC2001_Annual_Report.pdf">http://www.fpc.org/fpc_docs/Annual_FPC_Report/Final-FPC2001_Annual_Report.pdf</a>	932	23.7%	82
2	<a href="http://www.fpc.org/fpc_docs/153-02.pdf">http://www.fpc.org/fpc_docs/153-02.pdf</a>	498	12.66%	115
3	<a href="http://www.fpc.org/weekrprt/wr2002/WR-02-22.pdf">http://www.fpc.org/weekrprt/wr2002/WR-02-22.pdf</a>	319	8.11%	111
4	<a href="http://www.fpc.org/weekrprt/wr2002/WR-02-21.pdf">http://www.fpc.org/weekrprt/wr2002/WR-02-21.pdf</a>	282	7.17%	109
5	<a href="http://www.fpc.org/fpc_docs/memos/157-02.pdf">http://www.fpc.org/fpc_docs/memos/157-02.pdf</a>	188	4.78%	45
6	<a href="http://www.fpc.org/bulltrout/ChelanBullT_movement_firstdraft_3885_3.pdf">http://www.fpc.org/bulltrout/ChelanBullT_movement_firstdraft_3885_3.pdf</a>	112	2.84%	10
7	<a href="http://www.fpc.org/fpc_docs/200-01.pdf">http://www.fpc.org/fpc_docs/200-01.pdf</a>	94	2.39%	12
8	<a href="http://www.fpc.org/bon_jda/ARPT01.pdf">http://www.fpc.org/bon_jda/ARPT01.pdf</a>	69	1.75%	6
9	<a href="http://www.fpc.org/weekrprt/wr2002/WR-02-20.pdf">http://www.fpc.org/weekrprt/wr2002/WR-02-20.pdf</a>	61	1.55%	19
10	<a href="http://www.fpc.org/fpc_docs/css/CSS_Report_FINAL.pdf">http://www.fpc.org/fpc_docs/css/CSS_Report_FINAL.pdf</a>	60	1.52%	13
11	<a href="http://www.fpc.org/fpc_docs/hatchery_releases/hatchery_releases2001.pdf">http://www.fpc.org/fpc_docs/hatchery_releases/hatchery_releases2001.pdf</a>	50	1.27%	18
12	<a href="http://www.fpc.org/fpc_docs/137-01.pdf">http://www.fpc.org/fpc_docs/137-01.pdf</a>	45	1.14%	17
13	<a href="http://www.fpc.org/fpc_docs/memos/153-02.pdf">http://www.fpc.org/fpc_docs/memos/153-02.pdf</a>	40	1.01%	12
14	<a href="http://www.fpc.org/fpc_docs/127-01.pdf">http://www.fpc.org/fpc_docs/127-01.pdf</a>	31	0.78%	18
15	<a href="http://www.fpc.org/bon_jda/lifecycles.pdf">http://www.fpc.org/bon_jda/lifecycles.pdf</a>	29	0.73%	7
16	<a href="http://www.fpc.org/fpc_docs/joint-technical/29-02.pdf">http://www.fpc.org/fpc_docs/joint-technical/29-02.pdf</a>	25	0.63%	4
17	<a href="http://www.fpc.org/fpc_docs/joint-technical/42-02.pdf">http://www.fpc.org/fpc_docs/joint-technical/42-02.pdf</a>	23	0.58%	16
18	<a href="http://www.fpc.org/fpc_docs/247-01.pdf">http://www.fpc.org/fpc_docs/247-01.pdf</a>	22	0.55%	8
19	<a href="http://www.fpc.org/fpc_docs/Fishway_Inspection/2001-09FishwayInspection.pdf">http://www.fpc.org/fpc_docs/Fishway_Inspection/2001-09FishwayInspection.pdf</a>	22	0.55%	7
20	<a href="http://www.fpc.org/fpc_docs/Fishway_Inspection/2002-06FishwayInspection.pdf">http://www.fpc.org/fpc_docs/Fishway_Inspection/2002-06FishwayInspection.pdf</a>	20	0.5%	5
	<b>Total For the Files Above</b>	<b>2,922</b>	<b>74.31%</b>	<b>N/A</b>

## ***Most Downloaded File Types***

This section identifies the accessed file types and the total kilobytes downloaded for each file type. Cached requests and erred hits are excluded from the totals.

<b>Most Downloaded File Types</b>			
	<b>File type</b>	<b>Files</b>	<b>K Bytes Transferred</b>
1	gif	94,252	240,429
2	htm	14,775	856,588
3	jpg	6,183	179,869
4	html	4,088	100,638
5	pdf	3,894	368,038
6	asp	3,885	72,741
7	css	3,398	41,539
8	txt	2,009	13,492
9	xml	196	346
10	ico	173	93
11	emz	140	752
12	csv	98	2,833
13	tee	58	771
14	js	37	629
15	xls	29	32,186
16	doc	29	2,313
17	cab	25	8,565
18	jar	18	199
19	mso	13	514
20	png	12	77
<b>Total Files &amp; K Bytes Transferred</b>		<b>133,312</b>	<b>1,922,602</b>

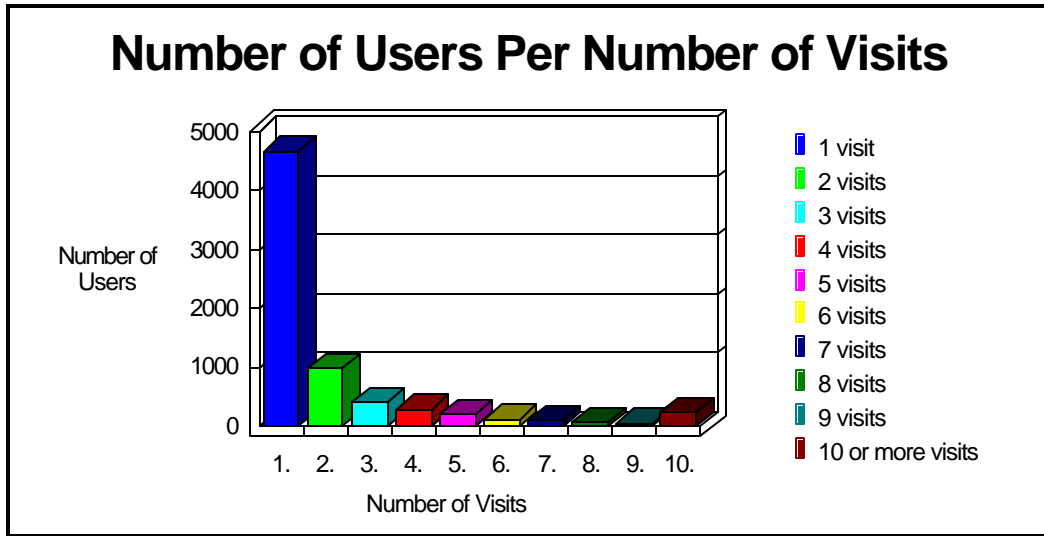
## Dynamic Pages & Forms

This section identifies the most popular dynamic pages and forms executed by the server. WebTrends counts any line with a Post command or a Get command with a "?" as a dynamic page, and shows only successful hits.

Dynamic Pages & Forms				
	Dynamic Pages	No. of Pages	% of Total	User Sessions
1	<a href="http://www.fpc.org/smolt/descalingquery/descaling_query.asp">http://www.fpc.org/smolt/descalingquery/descaling_query.asp</a>	13	41.93%	2
2	<a href="http://www.fpc.org/adultqueries/Adult_Table_2002.asp">http://www.fpc.org/adultqueries/Adult_Table_2002.asp</a>	4	12.9%	3
3	<a href="http://www.fpc.org/Hatchery/HatcheryRelDates_Results.asp">http://www.fpc.org/Hatchery/HatcheryRelDates_Results.asp</a>	2	6.45%	2
4	<a href="http://www.fpc.org/smoltqueries/HistoricDailyGraph.asp">http://www.fpc.org/smoltqueries/HistoricDailyGraph.asp</a>	2	6.45%	2
5	<a href="http://www.fpc.org/adultqueries/Adult_Table.asp">http://www.fpc.org/adultqueries/Adult_Table.asp</a>	2	6.45%	2
6	<a href="http://www.fpc.org/smoltqueries/newHistoricDailyData.asp">http://www.fpc.org/smoltqueries/newHistoricDailyData.asp</a>	2	6.45%	1
7	<a href="http://www.fpc.org/ivesisland.asp">http://www.fpc.org/ivesisland.asp</a>	2	6.45%	2
8	<a href="http://www.fpc.org/Hatchery/HatcheryAgency_Results.asp">http://www.fpc.org/Hatchery/HatcheryAgency_Results.asp</a>	1	3.22%	1
9	<a href="http://www.fpc.org/Hatchery/HatcherybyHatchery_Results.asp">http://www.fpc.org/Hatchery/HatcherybyHatchery_Results.asp</a>	1	3.22%	1
10	<a href="http://www.fpc.org/smoltqueries/CurrentDailyData.asp">http://www.fpc.org/smoltqueries/CurrentDailyData.asp</a>	1	3.22%	1

## Number of Users Per Number of Visits

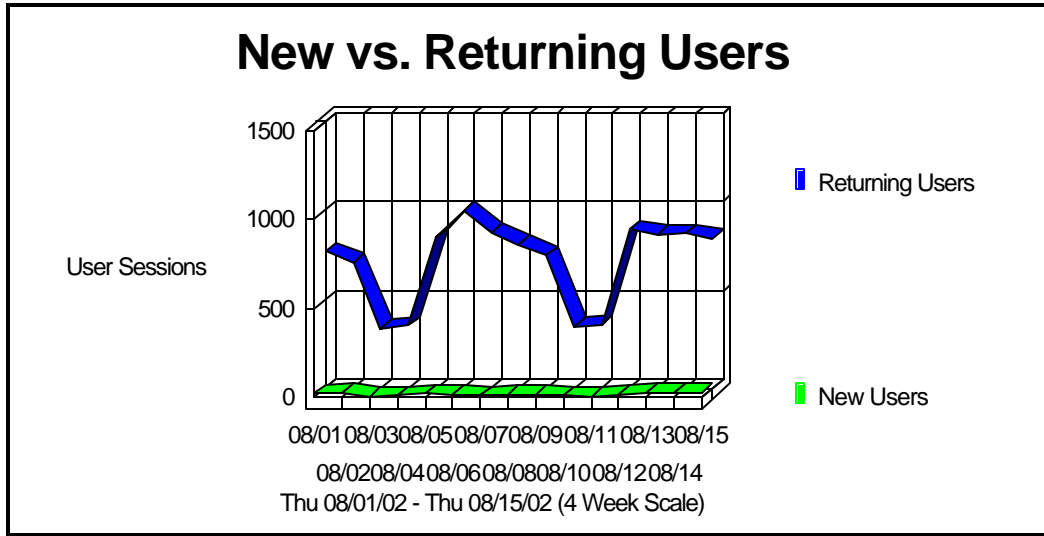
This section shows the distribution of users based on how many times each user visited your site.



Number of Users Per Number of Visits	
Number of Visits	Number of Users
1 visit	4663
2 visits	980
3 visits	413
4 visits	286
5 visits	200
6 visits	116
7 visits	90
8 visits	62
9 visits	49
10 or more visits	223

## New vs. Returning Users

This section shows the number of new visitors to your site and the number of returning visitors to your site. Only visitors identified by cookies are counted. New visitors are those who didn't have a cookie on their 1st hit, but had one on later hits. Returning visitors are those who already had a cookie on their 1st hit (their previous visit happened before the start of this report period.)



New vs. Returning Users	
New or Returning User	Number of User Sessions
Returning Users	10,633
New Users	294

## Top Users

This section identifies the IP address and/or domain name and their relative activity level on the site. If you do not use WebTrends cookies to track sessions on the site, WebTrends cannot differentiate between hits from different users of a same IP.

Top Users				
	User	Hits	% of Total Hits	User Sessions
1	63.224.35.180-1103042144.29478736	2,978	1.37%	4
2	204.245.210.210-3117222448.29496262	2,693	1.24%	33
3	12.229.3.136-2235152048.29478037	2,228	1.02%	40
4	204.245.210.206-2041343232.29503533	2,139	0.98%	28
5	209.19.139.2-856688064.29485591	1,992	0.91%	21
6	204.245.210.200-3583856336.29506759	1,837	0.84%	15
7	204.245.210.232-1850554096.29506699	1,126	0.51%	17
8	204.245.210.211-2967090528.29504157	976	0.45%	39
9	208.35.181.250-534938912.29485203	933	0.43%	23
10	12.224.182.86-1647937712.29500528	899	0.41%	21
11	63.194.167.81-3053887792.29485798	843	0.38%	21
12	12.225.146.4-3066136928.29487007	823	0.37%	17
13	63.15.127.211-829991856.29472889	807	0.37%	13
14	12.36.12.2-4125781312.29486428	800	0.36%	11
15	209.216.171.113-193548048.29505787	800	0.36%	14
16	161.55.198.23-3673136464.29280191	755	0.34%	11
17	66.12.19.190-2138459824.29408406	741	0.34%	17
18	206.81.101.104-979869376.29407644	705	0.32%	9
19	12.18.216.44-1523110496.29502049	698	0.32%	14
20	66.224.0.35-3390366992.29491223	673	0.31%	19
	<b>Sub Total for Users Above</b>	17,801	8.21%	241
	<b>Total</b>	<b>214,636</b>	<b>100%</b>	<b>15,420</b>



## Most Active Organizations

This section identifies the companies or organizations that accessed the site the most often.

Most Active Organizations				
	Organizations	Hits	% of Total Hits	User Sessions
1	attbi.com	11,512	5.56%	810
2	uswest.net	8,492	4.1%	282
3	UUNET Technologies Inc. uu.net	7,711	3.72%	559
4	America Online aol.com	6,084	2.94%	1,520
5	KOKANEE	4,613	2.22%	72
6	CABZON	3,151	1.52%	119
7	ANCHOVY	3,132	1.51%	56
8	Gorge Networks Inc. gorge.net	3,053	1.47%	267
9	PAIUTE	2,678	1.29%	35
10	Charter Systems charter.com	2,457	1.18%	174
11	dsl-verizon.net	2,302	1.11%	152
12	pioneernet.net	2,275	1.09%	50
13	First Step fsr.net	2,238	1.08%	115
14	blm.gov	2,232	1.07%	62
15	boeing.com	2,210	1.06%	191
16	fs.fed.us	2,188	1.05%	54
17	Department Of Energy Richland hanford.gov	2,176	1.05%	65
18	HALFMOON	2,139	1.03%	33
19	Micron Electronics Inc. micronpc.com	2,033	0.98%	22
20	NorthWest Link nwlink.com	2,019	0.97%	157
21	army.mil	1,882	0.9%	74
22	United States Geological Survey usgs.gov	1,676	0.8%	74
23	bossig.com	1,591	0.76%	80
24	Level3.net	1,477	0.71%	170
25	Idaho National Engineering And Environmental Laboratory INEL.GOV	1,329	0.64%	30
26	Northwest Internet nwinternet.com	1,162	0.56%	78
27	nw-tel.com	1,102	0.53%	54
28	208.35.181.252	1,070	0.51%	26
29	Rocky Mountain Communications Inc rmci.net	1,033	0.49%	44
30	GTE Intelligent Network Services gte.net	1,012	0.48%	62
	<b>Sub Total For Companies Above</b>	<b>88,029</b>	<b>42.54%</b>	<b>5,487</b>
	<b>Total For the Log File</b>	<b>214,636</b>	<b>100%</b>	<b>15,420</b>

## Organization Breakdown

This section provides a breakdown by types of organizations (.com, .net, .edu, .org, .mil, and .gov.) This information can only be displayed if reverse DNS lookups have been performed, and the percentages refer to the total of hits for which the organization type can be determined (some IPs cannot be resolved to a domain, and therefore an organization type cannot be determined).

<b>Organization Breakdown</b>				
	<b>Organization Type</b>	<b>Hits</b>	<b>% of Total Hits</b>	<b>User Sessions</b>
1	Company	65,733	45.8%	6,375
2	Network	56,065	39.06%	3,677
3	Government	11,813	8.23%	464
4	Education	3,833	2.67%	239
5	Organization	3,394	2.36%	242
6	Military	2,578	1.79%	121
7	Arpanet	100	0.06%	9
	<b>Total for Known Organization Types</b>	<b>143,516</b>	<b>100%</b>	<b>11,127</b>

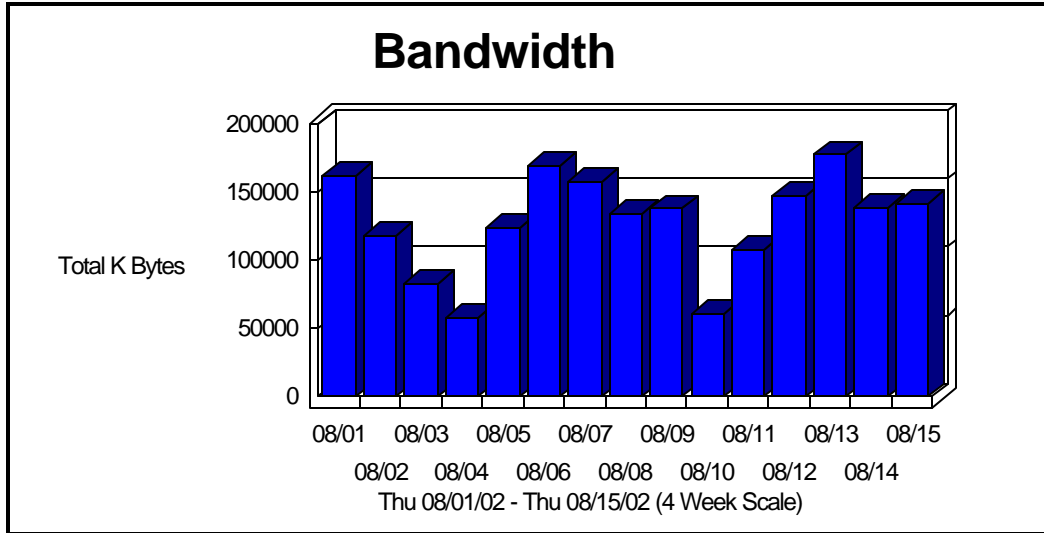
## Summary of Activity for Report Period

This section outlines general server activity, comparing the level of activity on weekdays and weekends. The Average Number of Users and Hits on Weekdays are the averages for each individual week day. The Average Number of Users and Hits for Weekends groups Saturday and Sunday together. Values in the table do not include erred hits.

Summary of Activity for Report Period	
Average Number of <b>Users</b> per day on Weekdays	1,177
Average Number of <b>Hits</b> per day on Weekdays	17,022
Average Number of <b>Users</b> for the entire Weekend	1,232
Average Number of <b>Hits</b> for the entire Weekend	13,696
Most Active Day of the Week	Thu
Least Active Day of the Week	Sat
Most Active Day Ever	August 06, 2002
Number of Hits on Most Active Day	22,894
Least Active Day Ever	August 03, 2002
Number of Hits on Least Active Day	5,919
<b>Most Active Hour of the Day</b>	09:00-09:59
<b>Least Active Hour of the Day</b>	02:00-02:59

## Summary of Activity by Time Increment

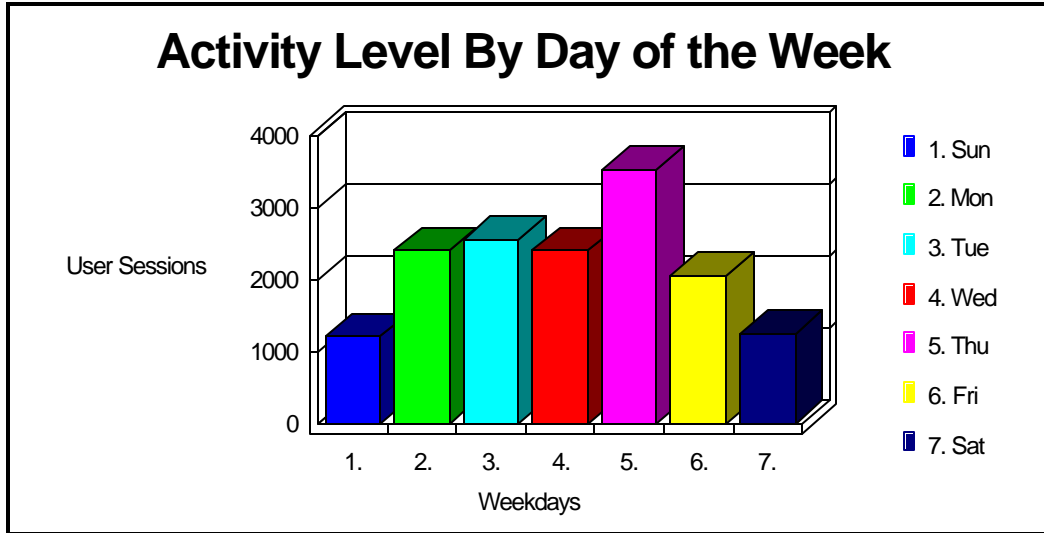
This section helps you understand the bandwidth requirements of the site by indicating the volume of activity in kilobytes transferred. The table provides various measures of activity by unit of time for the report period (the unit of time depends on the amount of time covered by the report, and will be the day in most cases).



Summary of Activity by Time Increment				
Time Interval	Hits	Page Views	KBytes Transferred	User Sessions
08/01	14,202	2,104	162,893 K	1,150
08/02	14,963	1,919	118,400 K	1,035
08/03	5,919	819	83,494 K	592
08/04	6,904	910	58,061 K	596
08/05	15,974	2,085	124,605 K	1,154
08/06	22,894	4,772	169,069 K	1,334
08/07	17,873	2,223	157,991 K	1,213
08/08	15,613	2,183	134,268 K	1,185
08/09	13,841	1,848	138,078 K	1,021
08/10	6,939	936	60,732 K	663
08/11	7,631	1,131	108,462 K	613
08/12	17,833	2,263	147,590 K	1,256
08/13	19,521	3,527	177,652 K	1,223
08/14	17,471	2,174	139,313 K	1,191
08/15	17,058	2,277	142,147 K	1,194
<b>Total</b>	<b>214,636</b>	<b>31,171</b>	<b>1,922,755 K</b>	<b>15,420</b>

## Activity Level by Day of the Week

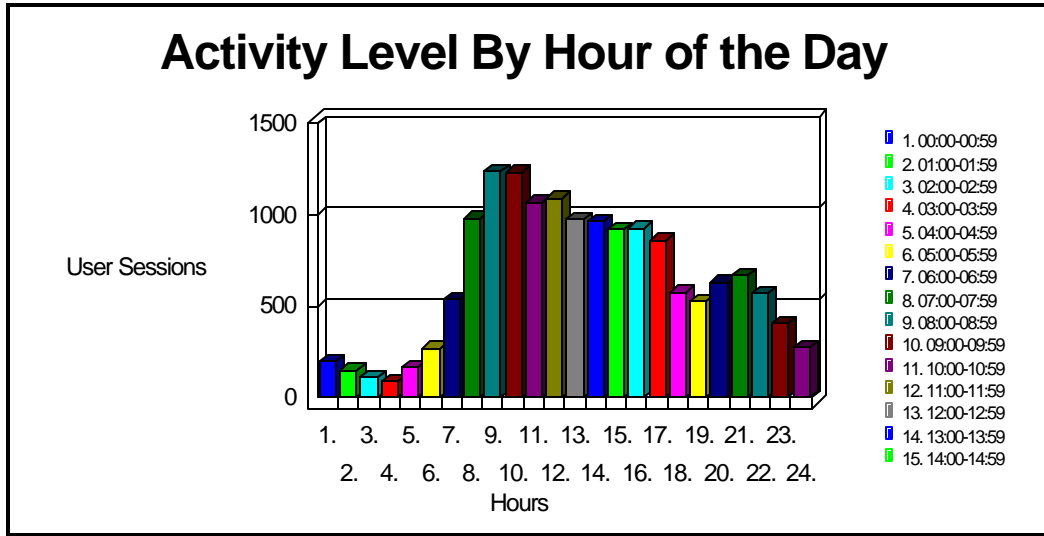
This section shows the activity for each day of the week for the report period (i.e. if there are two Mondays in the report period, the value presented is the sum of all hits for both Mondays.) Values in the table do not include erred hits.



Activity Level by Day of the Week				
	Day	Hits	% of Total Hits	User Sessions
1	Sun	14,535	6.77%	1,209
2	Mon	33,807	15.75%	2,410
3	Tue	42,415	19.76%	2,557
4	Wed	35,344	16.46%	2,404
5	Thu	46,873	21.83%	3,529
6	Fri	28,804	13.41%	2,056
7	Sat	12,858	5.99%	1,255
	Total Weekdays	187,243	87.23%	12,956
	<b>Total Weekend</b>	<b>27,393</b>	<b>12.76%</b>	<b>2,464</b>

## Activity Level by Hour of the Day

This section shows the most and the least active hour of the day for the report period. The second table breaks down activity for the given report period to show the average activity for each individual hour of the day (if there are several days in the report period, the value presented is the sum of all hits during that period of time for all days). All times are referenced to the location of the system running the analysis.



Activity Level by Hours Details			
Hour	# of Hits	% of Total Hits	# of User Sessions
00:00-00:59	2,186	1.01%	200
01:00-01:59	1,302	0.6%	152
02:00-02:59	818	0.38%	113
03:00-03:59	881	0.41%	91
04:00-04:59	1,874	0.87%	167
05:00-05:59	2,681	1.24%	271
06:00-06:59	7,384	3.44%	539
07:00-07:59	14,436	6.72%	981
08:00-08:59	20,601	9.59%	1,236
09:00-09:59	20,713	9.65%	1,230
10:00-10:59	17,101	7.96%	1,065
11:00-11:59	15,193	7.07%	1,086
12:00-12:59	14,974	6.97%	976
13:00-13:59	15,238	7.09%	961
14:00-14:59	14,768	6.88%	920
15:00-15:59	13,644	6.35%	924
16:00-16:59	10,297	4.79%	862
17:00-17:59	7,336	3.41%	576
18:00-18:59	5,933	2.76%	526
19:00-19:59	7,393	3.44%	628
20:00-20:59	6,909	3.21%	668
21:00-21:59	5,968	2.78%	570
22:00-22:59	3,926	1.82%	404
23:00-23:59	3,080	1.43%	274
<b>Total Users during Work Hours (8:00am-5:00pm)</b>	<b>142,529</b>	<b>66.4%</b>	<b>9,260</b>

<b>Activity Level by Hours Details</b>			
<b>Hour</b>	<b># of Hits</b>	<b>% of Total Hits</b>	<b># of User Sessions</b>
<b>Total Users during After Hours (5:01pm-7:59am)</b>	<b>72,107</b>	<b>33.59%</b>	<b>6,160</b>

## ***Technical Statistics and Analysis***

This table shows the total number of hits for the site, how many were successful, how many failed, and calculates the percentage of hits that failed. It may help you in determining the reliability of the site.

<b>Technical Statistics and Analysis</b>	
Total Hits	216,810
Successful Hits	214,636
Failed Hits	2,174
Failed Hits as Percent	1%
Cached Hits	81,303
Cached Hits as Percent	37.49%



## ***Dynamic Pages & Forms Errors***

This section shows the number of successful form submissions compared to the number that failed. WebTrends considers anything with Post command as a dynamic page.

<b>Dynamic Pages &amp; Forms Errors</b>		
<b>Type</b>	<b>Hits</b>	<b>% of Total</b>
Failed Forms Submitted	480	93.93%
Successful Forms Submitted	31	6.06%
<b>Total</b>	<b>511</b>	<b>100%</b>

## **Client Errors**

This section identifies the error codes from the browsers accessing your server.

<b>Client Errors</b>		
<b>Error</b>	<b>Hits</b>	<b>% of Failed Hits</b>
<b>404 Page or File Not Found</b>	1,320	87.35%
<b>405 Incomplete / Undefined</b>	90	5.95%
<b>406 Incomplete / Undefined</b>	75	4.96%
<b>403 Forbidden Access</b>	17	1.12%
<b>400 Bad Request</b>	9	0.59%
<b>Total</b>	<b>1,511</b>	<b>100%</b>



## **Server Errors**

This section identifies by type the errors which occurred on the server.

<b>Server Errors</b>		
<b>Error</b>	<b>Hits</b>	<b>% of Total</b>
<b>500 Internal Error</b>	<b>663</b>	<b>100%</b>
<b>Total</b>	<b>663</b>	<b>100%</b>

## Top Referring Sites

This section identifies the domain names or numeric IP addresses with links to the site. This information will only be displayed if your server is logging this information.

Top Referring Sites		
	Site	User Sessions
1	No Referrer	7,506
2	<a href="http://www.fpc.org/">http://www.fpc.org/</a>	5,001
3	<a href="http://www.ifish.net/">http://www.ifish.net/</a>	649
4	<a href="http://www.google.com/">http://www.google.com/</a>	302
5	[unknown+origin]	273
6	<a href="http://search.msn.com/">http://search.msn.com/</a>	160
7	<a href="http://ifish.net/">http://ifish.net/</a>	129
8	<a href="http://www.flyfishingdeschutes.com/">http://www.flyfishingdeschutes.com/</a>	119
9	<a href="http://www2.state.id.us/">http://www2.state.id.us/</a>	111
10	<a href="http://google.yahoo.com/">http://google.yahoo.com/</a>	108
11	<a href="http://search.yahoo.com/">http://search.yahoo.com/</a>	80
12	<a href="http://www.wa.gov/">http://www.wa.gov/</a>	67
13	<a href="http://www.fpc.org/">http://www.fpc.org</a>	53
14	<a href="http://auto.search.msn.com/">http://auto.search.msn.com/</a>	51
15	bookmarks	39
16	<a href="http://www.idfishnhunt.com/">http://www.idfishnhunt.com/</a>	37
17	<a href="http://www.ifish.net">http://www.ifish.net</a>	31
18	<a href="http://www.creeksideflyfishing.com/">http://www.creeksideflyfishing.com/</a>	29
19	<a href="http://aolsearch.aol.com/">http://aolsearch.aol.com/</a>	24
20	<a href="http://www.cqs.washington.edu/">http://www.cqs.washington.edu/</a>	24
	<b>Sub Total for the Referring Sites Above</b>	<b>14,793</b>
	<b>Total for the Log File</b>	<b>15,420</b>

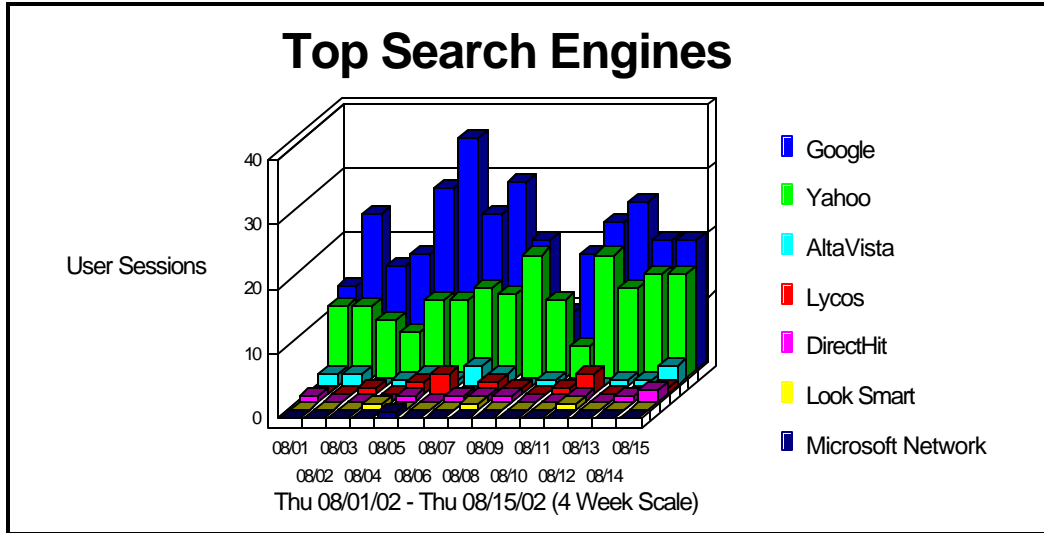
## Top Referring URLs

This section provides the full URLs of the sites with links to the site. This information will only be displayed if your server is logging the referrer information.

Top Referring URLs		
	URL	User Sessions
1	No Referrer	7,506
2	<a href="http://www.fpc.org/CurrentDaily/7day-ytd_adults.htm">http://www.fpc.org/CurrentDaily/7day-ytd_adults.htm</a>	2,647
3	<a href="http://www.fpc.org/">http://www.fpc.org/</a>	1,532
4	<a href="http://www.ifish.net/">http://www.ifish.net/</a>	649
5	<a href="http://www.fpc.org/adult.html">http://www.fpc.org/adult.html</a>	412
6	[unknown+origin]	273
7	<a href="http://ifish.net/">http://ifish.net/</a>	129
8	<a href="http://www.flyfishingdeschutes.com/fish_count.htm">http://www.flyfishingdeschutes.com/fish_count.htm</a>	119
9	<a href="http://www2.state.id.us/fishgame/fish/programsinfo/anadcounts/counts.htm">http://www2.state.id.us/fishgame/fish/programsinfo/anadcounts/counts.htm</a>	111
10	<a href="http://www.wa.gov/wdfw/fishcorn.htm">http://www.wa.gov/wdfw/fishcorn.htm</a>	67
11	<a href="http://www.fpc.org">http://www.fpc.org</a>	53
12	<a href="http://www.fpc.org/Index.htm">http://www.fpc.org/Index.htm</a>	52
13	bookmarks	39
14	<a href="http://www.ifish.net">http://www.ifish.net</a>	31
15	<a href="http://www.fpc.org/SMPDATA.html">http://www.fpc.org/SMPDATA.html</a>	30
16	<a href="http://www.creeksideflyfishing.com/fishingreport.htm">http://www.creeksideflyfishing.com/fishingreport.htm</a>	29
17	<a href="http://auto.search.msn.com/results.asp?cfg=SMCINITIAL&amp;RS=CHECKED&amp;v=1&amp;srch=">http://auto.search.msn.com/results.asp?cfg=SMCINITIAL&amp;RS=CHECKED&amp;v=1&amp;srch=</a>	23
18	<a href="http://www.flyfishusa.com/about-our-waters/our-waters-home/our-waters.html">http://www.flyfishusa.com/about-our-waters/our-waters-home/our-waters.html</a>	20
19	<a href="http://www.fishingmagician.com/links.html">http://www.fishingmagician.com/links.html</a>	20
20	<a href="http://www.fpc.org/tempgraphs/tempsubmit.htm">http://www.fpc.org/tempgraphs/tempsubmit.htm</a>	18
	<b>Sub Total for the Referrers Above</b>	<b>13,760</b>
	<b>Total for the Log File</b>	<b>15,420</b>

## Top Search Engines

The graphic illustrates the new user sessions initiated by searches from each search engine. The first table identifies which search engines referred visitors to the site the most often. Note that each search may contain several keywords. The second table identifies the main keywords for each search engine.



Top Search Engines			
	Engine s	Searches	% of Total
1	Google	409	60.68%
2	Yahoo	208	30.86%
3	AltaVista	23	3.41%
4	Lycos	17	2.52%
5	DirectHit	12	1.78%
6	Look Smart	4	0.59%
7	Microsoft Network	1	0.14%
	<b>Total of Searches for the Engines Above</b>	674	100%
	<b>Total of Searches for the Log File</b>	<b>674</b>	<b>100%</b>

Top Search Engines with Search Phrases Detail			
Engines	Phrases	Phrases Found	% of Total
<b>Google</b>	snake fish	26	3.85%
	fish passage center	25	3.7%
	bonneville dam fish count	8	1.18%
	rocky reach dam	7	1.03%
	columbia river fish counts	7	1.03%
	mcnary dam	6	0.89%
	wells dam	5	0.74%
	ice harbor dam	5	0.74%
	adult fish count on columbia	5	0.74%
	columbia river fish count	5	0.74%
<b>Yahoo</b>	snake fish	17	2.52%
	fish passage center	17	2.52%
	fish passage	12	1.78%
	the dalles dam	5	0.74%

<b>Top Search Engines with Search Phrases Detail</b>			
<b>Engines</b>	<b>Phrases</b>	<b>Phrases Found</b>	<b>% of Total</b>
	fish counts on bonneville dam	4	0.59%
	steelhead	4	0.59%
	rocky reach dam	4	0.59%
	mcnary dam	4	0.59%
	fish	4	0.59%
	wanapum dam	3	0.44%
<b>AltaVista</b>	http://www.fpc.org/fishway/jda.htm l	5	0.74%
	carbonate or passage or reg or bureaus or incas	1	0.14%
	columbia fish count	1	0.14%
	columbia river fish counts	1	0.14%
	april 1, 1984	1	0.14%
	elder or prolate or carnivorous or roam or fish	1	0.14%
	fish adult passage columbia	1	0.14%
	fish ladder	1	0.14%
	fish passage center	1	0.14%
	abominate or fish or tot or schooner or forewarns	1	0.14%
<b>DirectHit</b>	columbia river fish count	6	0.89%
	columbia river fish counts	1	0.14%
	columbia river steelhead	1	0.14%
	mcnary dam	1	0.14%
	rock island dam	1	0.14%
	wells dam	1	0.14%
	columbia river	1	0.14%
<b>Lycos</b>	army smp	4	0.59%
	map salmon migration	2	0.29%
	snake fish	2	0.29%
	fish passage center	1	0.14%
	fpc.org	1	0.14%
	columbia river dams	1	0.14%
	dam fish counts	1	0.14%
	fish identification	1	0.14%
	salmon	1	0.14%
	system operation and support	1	0.14%
<b>Look Smart</b>	fish passage center	1	0.14%
	rocky reach dam	1	0.14%
	usace fish counts	1	0.14%
	bonneville dam fish counts	1	0.14%
<b>Microsoft Network</b>	columbia river fish count	1	0.14%

<b>Top Search Engines with Keywords Detail</b>			
<b>Engines</b>	<b>Keywords</b>	<b>Keywords Found</b>	<b>% of Total</b>
<b>Google</b>	fish	175	25.96%
	dam	94	13.94%
	bonneville	46	6.82%
	columbia	45	6.67%



<b>Top Search Engines with Keywords Detail</b>			
<b>Engines</b>	<b>Keywords</b>	<b>Keywords Found</b>	<b>% of Total</b>
	count	43	6.37%
	river	41	6.08%
	passage	41	6.08%
	counts	33	4.89%
	snake	32	4.74%
	center	28	4.15%
<b>Yahoo</b>	fish	106	15.72%
	dam	48	7.12%
	passage	44	6.52%
	snake	27	4%
	river	24	3.56%
	center	23	3.41%
	columbia	17	2.52%
	counts	12	1.78%
	count	12	1.78%
	salmon	11	1.63%
<b>AltaVista</b>	fish	13	1.92%
	<a href="http://www.fpc.org/fishway/jda.html">http://www.fpc.org/fishway/jda.html</a>	5	0.74%
	passage	5	0.74%
	salmon	3	0.44%
	columbia	3	0.44%
	counts	2	0.29%
	1984	1	0.14%
	bigot	1	0.14%
	bleat	1	0.14%
	bureaus	1	0.14%
<b>Lycos</b>	fish	5	0.74%
	army	4	0.59%
	smp	4	0.59%
	salmon	3	0.44%
	migration	2	0.29%
	map	2	0.29%
	snake	2	0.29%
	identification	1	0.14%
	fpc.org	1	0.14%
	dam	1	0.14%
<b>DirectHit</b>	columbia	9	1.33%
	river	9	1.33%
	fish	7	1.03%
	count	6	0.89%
	dam	3	0.44%
	mcnary	1	0.14%
	counts	1	0.14%
	island	1	0.14%
	rock	1	0.14%
	steelhead	1	0.14%
<b>Look Smart</b>	fish	3	0.44%
	counts	2	0.29%

<b>Top Search Engines with Keywords Detail</b>			
<b>Engines</b>	<b>Keywords</b>	<b>Keywords Found</b>	<b>% of Total</b>
	dam	2	0.29%
	bonneville	1	0.14%
	passage	1	0.14%
	reach	1	0.14%
	rocky	1	0.14%
	usace	1	0.14%
	center	1	0.14%
<b>Microsoft Network</b>	count	1	0.14%
	fish	1	0.14%
	river	1	0.14%
	columbia	1	0.14%

## Top Search Phrases

The first table identifies Phrases which led the most visitors to the site (regardless of the search engine). The second table identifies, for each phrase, which search engines led visitors to the site.

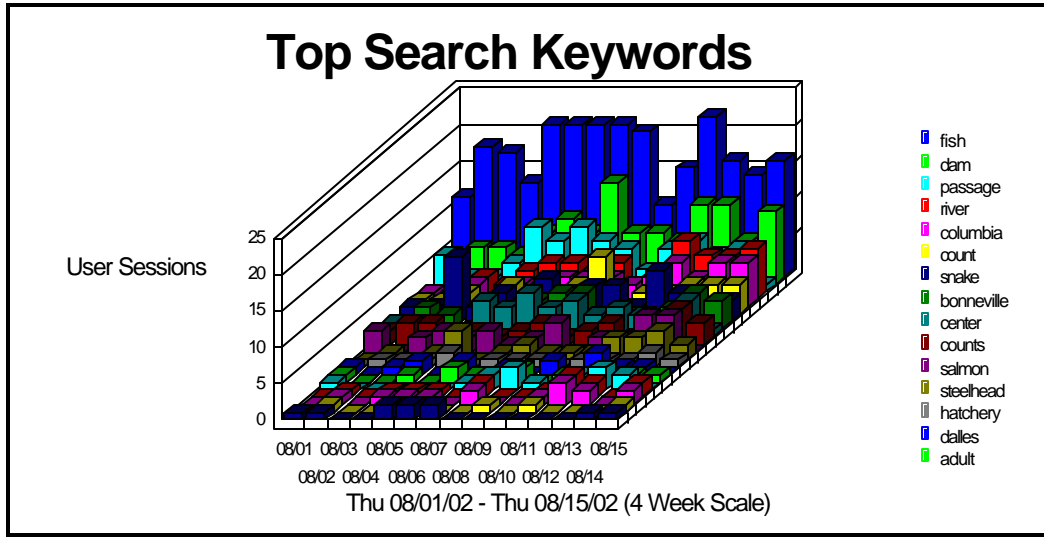
<b>Top Search Phrases</b>			
	<b>Phrases</b>	<b>Phrases found</b>	<b>% of Total</b>
1	fish passage center	45	6.67%
2	snake fish	45	6.67%
3	columbia river fish count	14	2.07%
4	fish passage	13	1.92%
5	rocky reach dam	12	1.78%
6	columbia river fish counts	11	1.63%
7	mcnary dam	11	1.63%
8	bonneville dam fish count	10	1.48%
9	the dalles dam	8	1.18%
10	ice harbor dam	8	1.18%
11	wells dam	7	1.03%
12	fish	7	1.03%
13	wanapum dam	6	0.89%
14	bonneville fish counts	6	0.89%
15	passage	6	0.89%
16	<a href="http://www.fpc.org/fishway/jda.html">http://www.fpc.org/fishway/jda.html</a>	5	0.74%
17	fish count bonneville dam	5	0.74%
18	adult fish count on columbia	5	0.74%
19	lower granite dam	4	0.59%
20	fish counts on bonneville dam	4	0.59%
	<b>Total Found for the Phrases Above</b>	<b>232</b>	<b>34.42%</b>
	<b>Total of Phrases Found in the Log File</b>	<b>674</b>	<b>100%</b>

<b>Top Search Phrases with Engines Detail</b>			
<b>Phrases</b>	<b>Engines</b>	<b>Searches</b>	<b>% of Total</b>
<b>fish passage center</b>	Google	25	3.7%
	Yahoo	17	2.52%
	Lycos	1	0.14%
	Look Smart	1	0.14%
	AltaVista	1	0.14%
<b>snake fish</b>	Google	26	3.85%
	Yahoo	17	2.52%
	Lycos	2	0.29%
<b>columbia river fish count</b>	DirectHit	6	0.89%
	Google	5	0.74%
	Yahoo	2	0.29%
	Microsoft Network	1	0.14%
<b>fish passage</b>	Yahoo	12	1.78%
	Google	1	0.14%
<b>rocky reach dam</b>	Google	7	1.03%
	Yahoo	4	0.59%
	Look Smart	1	0.14%
<b>columbia river fish counts</b>	Google	7	1.03%

<b>Top Search Phrases with Engines Detail</b>			
<b>Phrases</b>	<b>Engines</b>	<b>Searches</b>	<b>% of Total</b>
	Yahoo	2	0.29%
	DirectHit	1	0.14%
	AltaVista	1	0.14%
<b>mcnary dam</b>	Google	6	0.89%
	Yahoo	4	0.59%
	DirectHit	1	0.14%
<b>bonneville dam fish count</b>	Google	8	1.18%
	Yahoo	2	0.29%
<b>the dalles dam</b>	Yahoo	5	0.74%
	Google	3	0.44%
<b>ice harbor dam</b>	Google	5	0.74%
	Yahoo	3	0.44%
<b>wells dam</b>	Google	5	0.74%
	Yahoo	1	0.14%
	DirectHit	1	0.14%
<b>fish</b>	Yahoo	4	0.59%
	Google	3	0.44%
<b>wanapum dam</b>	Yahoo	3	0.44%
	Google	3	0.44%
<b>bonneville fish counts</b>	Google	5	0.74%
	Yahoo	1	0.14%
<b>passage</b>	Google	4	0.59%
	Yahoo	2	0.29%
<b><a href="http://www.fpc.org/fishway/jda.html">http://www.fpc.org/fishway/jda.html</a></b>	AltaVista	5	0.74%
<b>fish count bonneville dam</b>	Google	4	0.59%
	Yahoo	1	0.14%
<b>adult fish count on columbia</b>	Google	5	0.74%
<b>lower granite dam</b>	Google	4	0.59%
<b>fish counts on bonneville dam</b>	Yahoo	4	0.59%

## Top Search Keywords

The first table identifies keywords which led the most visitors to the site (regardless of the search engine). The second table identifies, for each keyword, which search engines led visitors to the site.



Top Search Keywords			
	Keywords	Keywords found	% of Total
1	fish	310	15.67%
2	dam	148	7.48%
3	passage	92	4.65%
4	river	77	3.89%
5	columbia	76	3.84%
6	count	63	3.18%
7	snake	61	3.08%
8	bonneville	58	2.93%
9	center	54	2.73%
10	counts	51	2.57%
11	salmon	37	1.87%
12	steelhead	30	1.51%
13	hatchery	19	0.96%
14	dalles	18	0.91%
15	adult	18	0.91%
16	mcnary	15	0.75%
17	rocky	15	0.75%
18	reach	15	0.75%
19	on	15	0.75%
20	island	14	0.7%
<b>Total Found for the Keywords Above</b>		<b>1,186</b>	<b>59.95%</b>
<b>Total of Keywords Found in the Log File</b>		<b>1,978</b>	<b>100%</b>

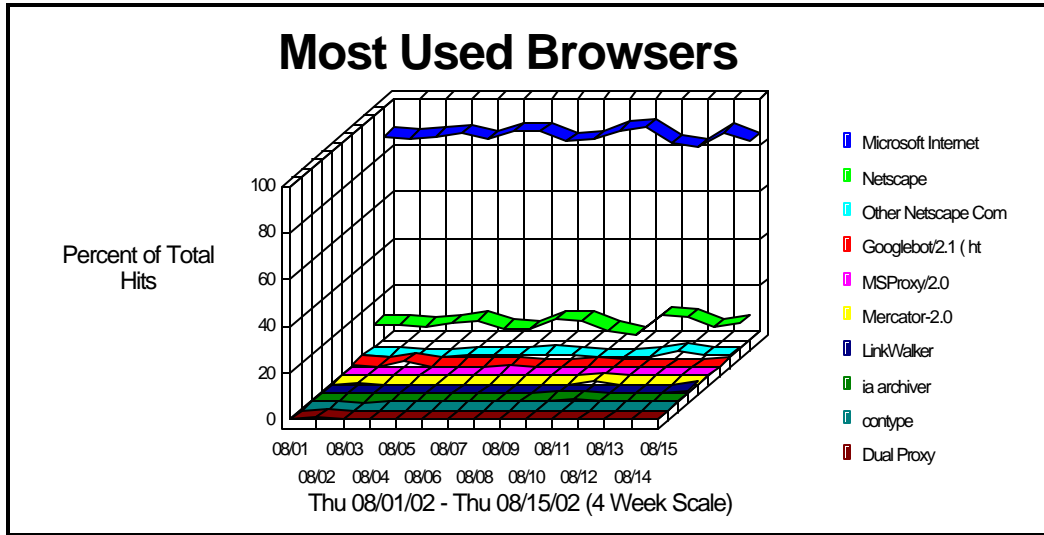
Top Search Keywords with Engines Detail			
Keywords	Engines	Searches	% of Total
fish	Google	175	8.84%
	Yahoo	106	5.35%

Top Search Keywords with Engines Detail			
Keywords	Engines	Searches	% of Total
	AltaVista	13	0.65%
	DirectHit	7	0.35%
	Lycos	5	0.25%
	Look Smart	3	0.15%
	Microsoft Network	1	0.05%
<b>dam</b>	Google	94	4.75%
	Yahoo	48	2.42%
	DirectHit	3	0.15%
	Look Smart	2	0.1%
	Lycos	1	0.05%
<b>passage</b>	Yahoo	44	2.22%
	Google	41	2.07%
	AltaVista	5	0.25%
	Lycos	1	0.05%
	Look Smart	1	0.05%
<b>river</b>	Google	41	2.07%
	Yahoo	24	1.21%
	DirectHit	9	0.45%
	Microsoft Network	1	0.05%
	Lycos	1	0.05%
	AltaVista	1	0.05%
<b>columbia</b>	Google	45	2.27%
	Yahoo	17	0.85%
	DirectHit	9	0.45%
	AltaVista	3	0.15%
	Microsoft Network	1	0.05%
	Lycos	1	0.05%
<b>count</b>	Google	43	2.17%
	Yahoo	12	0.6%
	DirectHit	6	0.3%
	Microsoft Network	1	0.05%
	AltaVista	1	0.05%
<b>snake</b>	Google	32	1.61%
	Yahoo	27	1.36%
	Lycos	2	0.1%
<b>bonneville</b>	Google	46	2.32%
	Yahoo	11	0.55%
	Look Smart	1	0.05%
<b>center</b>	Google	28	1.41%
	Yahoo	23	1.16%
	Lycos	1	0.05%
	Look Smart	1	0.05%
	AltaVista	1	0.05%
<b>counts</b>	Google	33	1.66%
	Yahoo	12	0.6%
	Look Smart	2	0.1%
	AltaVista	2	0.1%
	Lycos	1	0.05%
	DirectHit	1	0.05%
<b>salmon</b>	Google	20	1.01%

<b>Top Search Keywords with Engines Detail</b>			
<b>Keywords</b>	<b>Engines</b>	<b>Searches</b>	<b>% of Total</b>
	Yahoo	11	0.55%
	Lycos	3	0.15%
	AltaVista	3	0.15%
<b>steelhead</b>	Google	18	0.91%
	Yahoo	11	0.55%
	DirectHit	1	0.05%
<b>hatchery</b>	Google	15	0.75%
	Yahoo	4	0.2%
<b>dalles</b>	Google	12	0.6%
	Yahoo	6	0.3%
<b>adult</b>	Google	14	0.7%
	Yahoo	3	0.15%
	AltaVista	1	0.05%
<b>mcnary</b>	Google	8	0.4%
	Yahoo	6	0.3%
	DirectHit	1	0.05%
<b>rocky</b>	Google	9	0.45%
	Yahoo	5	0.25%
	Look Smart	1	0.05%
<b>reach</b>	Google	9	0.45%
	Yahoo	5	0.25%
	Look Smart	1	0.05%
<b>on</b>	Google	10	0.5%
	Yahoo	5	0.25%
<b>island</b>	Google	7	0.35%
	Yahoo	6	0.3%
	DirectHit	1	0.05%

## Most Used Browsers

This section identifies the most popular WWW Browsers used by visitors to the site. This information will only be displayed if your server is logging the browser/platform information.

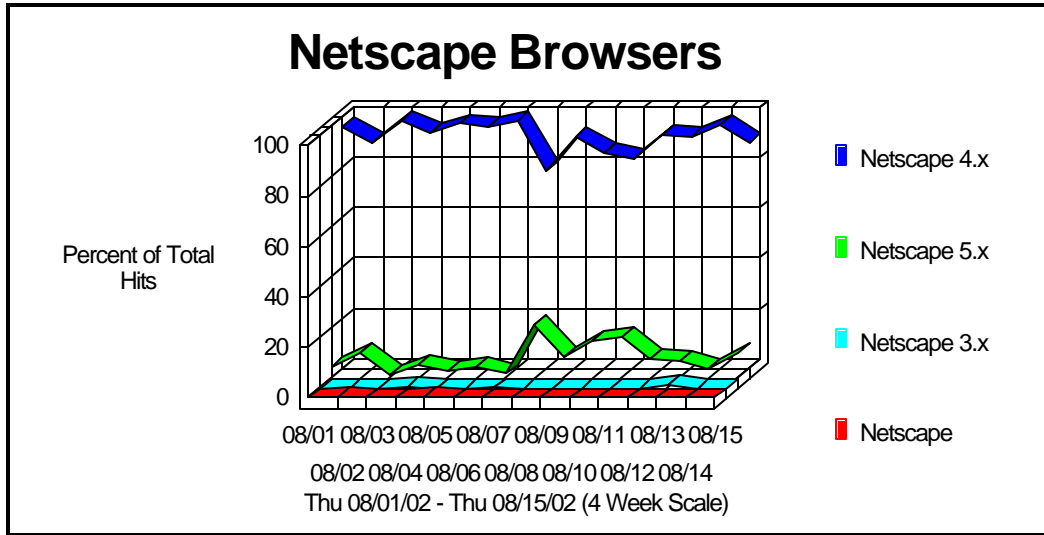


Most Used Browsers				
	Browser	Hits	% of Total Hits	User Sessions
1	Microsoft Internet Explorer	184,769	86.7%	12,776
2	Netscape	23,483	11.01%	1,253
3	Other Netscape Compatible	2,412	1.13%	319
4	Googlebot/2.1 ( http://www.googlebot.com/bot.html)	438	0.2%	213
5	MSProxy/2.0	390	0.18%	90
6	Mercator-2.0	264	0.12%	19
7	LinkWalker	235	0.11%	4
8	ia_archiver	216	0.1%	64
9	contype	149	0.06%	6
10	Dual Proxy	137	0.06%	1
	<b>Total For Browsers Above</b>	<b>212,493</b>	<b>99.71%</b>	<b>14,745</b>



## Netscape Browsers

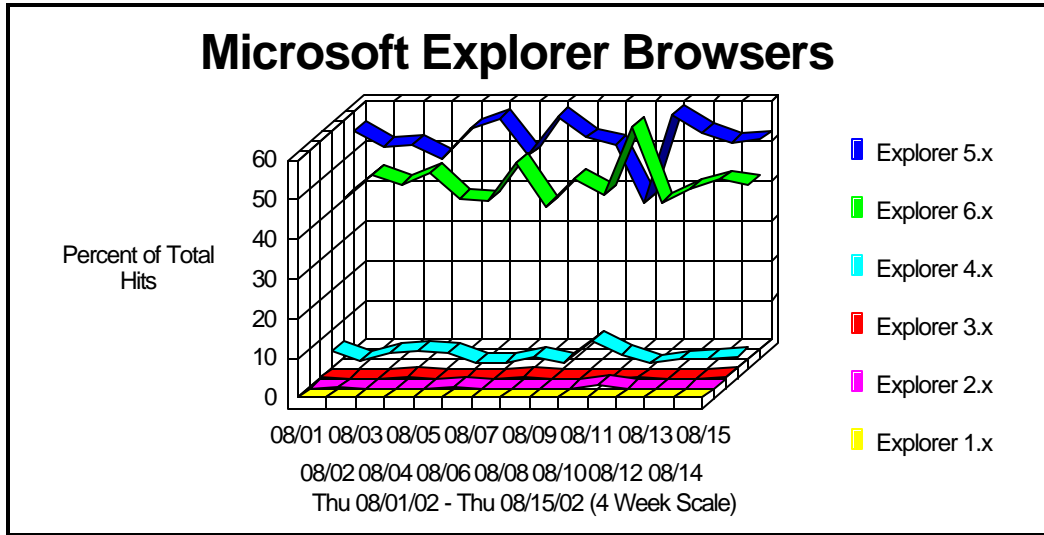
This section gives you a breakdown of the various versions of Netscape browsers that visitors to the site are using.



Netscape Browsers				
	Browser	Hits	% of Total Hits	User Sessions
1	Netscape 4.x	21,625	92.08%	1,044
2	Netscape 5.x	1,808	7.69%	203
3	Netscape 3.x	45	0.19%	5
4	Netscape	5	0.02%	1
	<b>Total For Browsers Above</b>	<b>23,483</b>	<b>100%</b>	<b>1,253</b>

## Microsoft Explorer Browsers

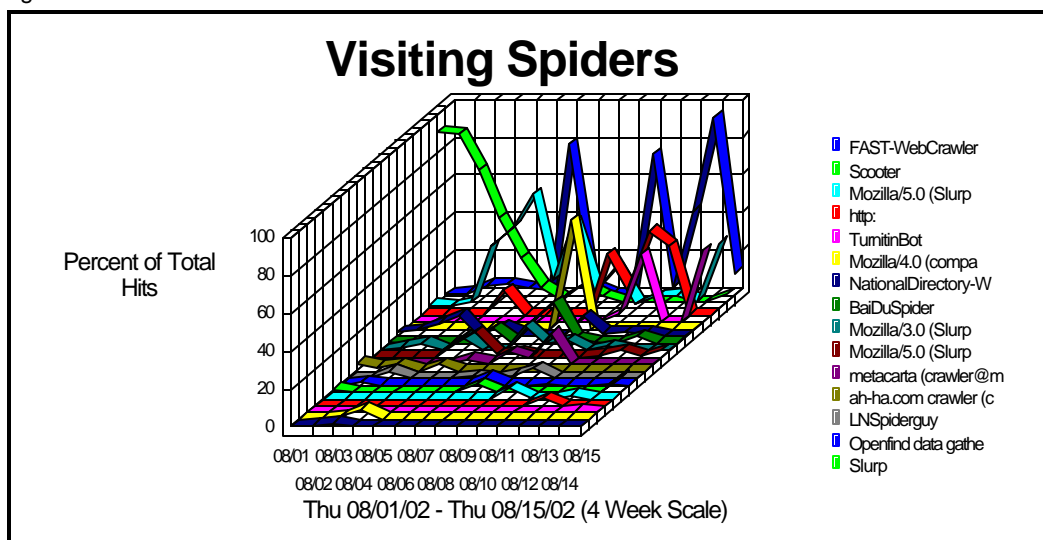
This section gives you a breakdown of the various versions of Microsoft Explorer browsers that visitors to the site are using.



Microsoft Explorer Browsers				
	Browser	Hits	% of Total Hits	User Sessions
1	Explorer 5.x	98,976	53.56%	7,146
2	Explorer 6.x	80,535	43.58%	5,241
3	Explorer 4.x	5,007	2.7%	330
4	Explorer 3.x	143	0.07%	36
5	Explorer 2.x	101	0.05%	18
6	Explorer 1.x	7	0%	5
	<b>Total For Browsers Above</b>	<b>184,769</b>	<b>100%</b>	<b>12,776</b>

## Visiting Spiders

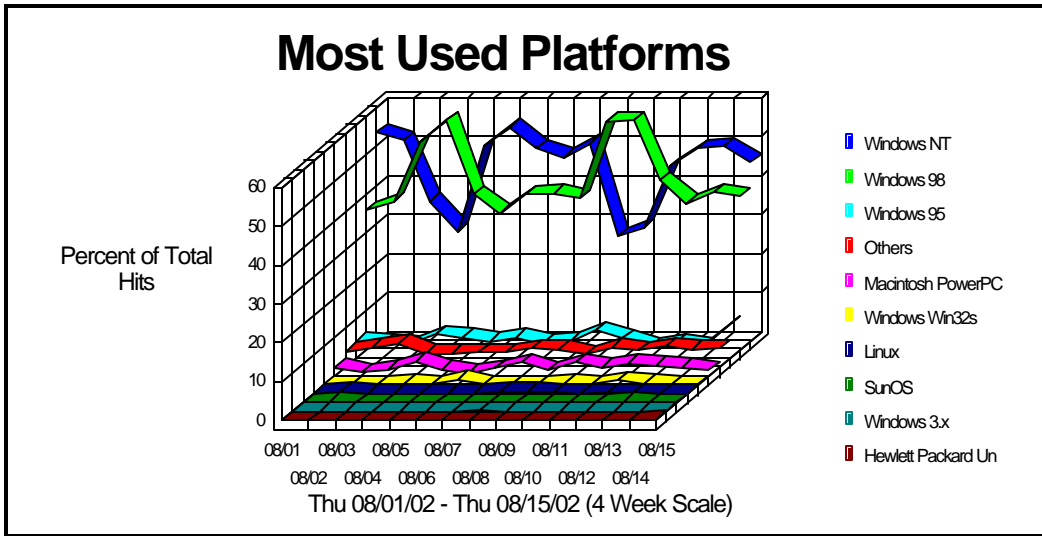
This section identifies all robots, spiders, crawlers and search services (i.e. Alta Vista, Lycos, and Excite) visiting the site.



Visiting Spiders				
	Spider	Hits	% of Total Hits	User Sessions
1	FAST-WebCrawler	630	41.31%	42
2	Scooter	345	22.62%	107
3	Mozilla/5.0 (Slurp/cat; slurp@inktomi.com; http://www.inktomi.com/slurp.html)	153	10.03%	148
4	http:	130	8.52%	18
5	TurnitinBot	65	4.26%	5
6	Mozilla/4.0 (compatible; MSIE 5.5; Windows NT 4.0; 3COM U.S. Robotics)	37	2.42%	2
7	NationalDirectory-WebSpider	31	2.03%	31
8	BaiDuSpider	29	1.9%	14
9	Mozilla/3.0 (Slurp/si; slurp@inktomi.com; http://www.inktomi.com/slurp.html)	18	1.18%	9
10	Mozilla/5.0 (Slurp/si; slurp@inktomi.com; http://www.inktomi.com/slurp.html)	16	1.04%	16
11	metacarta (crawler@metacarta.com)	14	0.91%	14
12	ah-ha.com crawler (crawler@ah-ha.com)	13	0.85%	12
13	LNSpiderguy	7	0.45%	4
14	Openfind data gatherer, Openbot	6	0.39%	6
15	Slurp	6	0.39%	3
16	Mozilla/4.0 (compatible; MSIE 4.01; Windows NT; MS Search 4.0 Robot) Microsoft	5	0.32%	4
17	Scooter-3.2.PDF	4	0.26%	1
18	Lycos_Spider_(modspider)	2	0.13%	0
19	Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.1; MSIECrawler)	2	0.13%	2
20	Mozilla/4.0 (compatible; MSIE 4.01; MSIECrawler; Windows 95)	2	0.13%	2
	<b>Total For Spiders Above</b>	<b>1,515</b>	<b>99.34%</b>	<b>440</b>

## Most Used Platforms

This section identifies the operating systems most used by the visitors to the site.



Most Used Platforms				
	Platform	Hits	% of Total Hits	User Sessions
1	Windows NT	100,507	47.16%	6,077
2	Windows 98	87,649	41.12%	6,481
3	Windows 95	9,791	4.59%	696
4	Others	9,321	4.37%	1,309
5	Macintosh PowerPC	4,328	2.03%	324
6	Windows Win32s	681	0.31%	7
7	Linux	573	0.26%	46
8	SunOS	139	0.06%	5
9	Windows 3.x	66	0.03%	26
10	Hewlett Packard Unix (HP9000)	56	0.02%	1
	<b>Total For Platforms Above</b>	<b>213,111</b>	<b>100%</b>	<b>14,972</b>



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**Attachment E**  
**to**  
**Fish Passage Center Proposal #199403300**  
**Response to ISRP Comments**

**SYMONDS, EVANS & LARSON, P.C.**  
CERTIFIED PUBLIC ACCOUNTANTS

REPORT OF INDEPENDENT ACCOUNTANTS  
ON APPLYING AGREED-UPON PROCEDURES

Pacific States Marine Fisheries Commission  
45 S.E. 82nd Drive, Suite 100  
Gladstone, Oregon 97027

We have performed the procedures enumerated below, which were agreed to by the Pacific States Marine Fisheries Commission (the Commission), solely to assist you in determining the accuracy of selected information related to the Smolt Monitoring Program (the SMP) that has been compiled by the Fish Passage Center (the FPC) during the period from January 1, 1996 through July 31, 1997. This engagement to apply agreed-upon procedures was performed in accordance with standards established by the American Institute of Certified Public Accountants. The sufficiency of the procedures is solely the responsibility of the Commission. Consequently, we make no representation regarding the sufficiency of the procedures described below either for the purpose for which this report has been requested or for any other purpose.

Our agreed-upon procedures were as follows:

- 1) Through inquiry of various personnel at the FPC and the Bonneville and McNary field collection sites, and observation of data at the FPC, we developed an understanding of the system, controls, procedures and flow of documents for the processing of the SMP information.
- 2) On a judgmental basis, we selected 15 transactions during the year ended December 31, 1996 and 10 transactions during the seven-month period ended July 31, 1997 to verify that errors in data that were detected by the FPC were appropriately corrected.
- 3) On a test basis, we verified the accuracy of judgmentally selected SMP information processed during the period from January 1, 1996 through July 31, 1997. For all field collection sites, we judgmentally selected the following five days from each of the following four judgmentally selected months in 1996 and the following two judgmentally selected months in the seven-month period ended July 31, 1997 (resulting in 30 days' activity being tested at each field collection site) and compared judgmentally selected information from the hand logs prepared by the field collection sites to the information as processed, summarized and posted by the FPC for distribution to third parties:

March 4, 13, 19, 26, 29, 1996  
May 2, 8, 14, 23, 31, 1996  
July 3, 8, 18, 24, 29, 1996

November 5, 6, 14, 15, 29, 1996  
April 3, 8, 17, 25, 28, 1997  
July 7, 16, 21, 25, 30, 1997

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**SYMONDS, EVANS & LARSON, P.C.**  
CERTIFIED PUBLIC ACCOUNTANTS

The following procedures were performed on this data:

- a) Agreed selected information recorded at the field collection sites according to the hand logs (and/or hand log summary pages) to the Daily Summary Report.
- b) Agreed selected information from the Daily Summary Report to the Daily Sample Catch and Passage Index Report.
- c) Agreed selected passage index information (or collection counts for trap sites) according to the Daily Sample Catch and Passage Index Report to the FPC Weekly Reports.
- d) Verified the mathematical accuracy of the passage indices according to the FPC Weekly Reports.
- e) Agreed selected information according to the Two-Week Transportation Summary to the Daily Summary Reports.
- f) Verified the accuracy of the Cumulative Transportation Summary by accumulating the activity according to the Daily Summary Reports.
- g) On a judgmental basis, agreed the sample items selected in 3a) through 3f) to the FPC's archived web page information.

As a result of performing the above agreed-upon procedures, we noted the following matters (see Exhibit 1 for specific findings by field collection site):

- 1) For the judgmentally selected transactions in agreed-upon procedure 2), we verified that all such errors in data that were detected by the FPC were appropriately corrected.
- 2) During 1997, several programming errors made by the FPC's independent computer consultants resulted in incorrect data on the Daily Summary Reports and the Daily Sample Catch and Passage Index Reports. We understand that these reports are not distributed to third-parties and are only utilized within the FPC. In instances where errors were detected on these internal reports, we verified that the correct information was properly reported in the electronic data and web page data which is available to third-parties.
- 3) Various data entry errors were made by personnel at the field collection sites. These errors predominantly occurred during 1997. It is important to note that 1997 was the first year of a new data entry system and, accordingly, we understand that management anticipated that such discrepancies and problems would occur. In addition, our agreed-upon procedures for 1997 took place prior to the completion of data verification by the field collection sites. The data verification process was delayed in 1997 due to the additional time involved with implementation of the new data entry system.



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- 4) Subsequent changes made to hand logs by the field collection sites were not always reflected in the Daily Summary Reports. This matter appears to be a result of the FPC's policy for re-posting revised batches. Changes are not made by the FPC on their database until a revised hand log, a revised electronic batch, and a memorandum explaining the modification is received from the field collection site. As previously noted, due to the implementation of a new data entry system in 1997, this process was sometimes delayed.
- 5) Errors by the field collection sites were made in transferring data from the hand log detail to the hand log summary page. When these discrepancies were discovered, we verified that the correct information was properly reported in the electronic data and web page data which is available to third-parties. We understand that the hand log summary page is an internal report utilized only by the field collection sites and that data at the field collection sites is entered into the system from the hand log detail page. The FPC may receive a copy of the hand log summary page, however, we understand that they only rely on the hand log detail to verify data accuracy.
- 6) An error by a field collection site was made in calculating the correct descaled percentage.
- 7) Differences in average lengths were noted between the hand logs and the Daily Summary Reports. These differences occurred when field collection sites entered lengths in the electronic batches that they did not include in their own average length calculation according to the hand logs. The FPC's computer program averaged all lengths entered, while the field collection sites did not include lengths below a minimum size (non-migrating fry) in calculating their average according to the Daily Summary Reports. Accordingly, the information regarding average lengths in the electronic data and web page data which is available to third-parties, is properly reported.
- 8) Differences were noted between the sample rates used in certain hand logs and Daily Summary Reports. The hand logs used a daily sample rate, whereas the Daily Summary Report used an hourly sample rate. We verified that the correct information (the hourly sample rate) was properly reported in the electronic data and web page data which is available to third-parties.

In response to the above matters, we recommend the following:

- 1) Management should contact the FPC's third-party computer consultants to ensure that all programming errors are appropriately corrected. In addition, FPC staff should continue internal efforts to prevent and detect any future programming errors.

**SYMONDS, EVANS & LARSON, P.C.**  
CERTIFIED PUBLIC ACCOUNTANTS

- 2) On a daily basis, the field collection sites should compare their electronically transmitted data to the hand logs and the Daily Summary Report. This procedure would:
  - a) Assist in the detection of data entry errors.
  - b) Assist in the detection of substantive errors in the hand logs.
  - c) Emphasize the importance and responsibility of the field collection site's personnel regarding the recording and input of data.

To encourage the field collection sites to perform this procedure on a consistent and accurate basis, it may be prudent to include such a procedure in each field collection site's annual contract.

- 3) The FPC should formally establish and document an ongoing program for verifying the accuracy of the recording and processing of the SMP information. In addition, due to internal time constraints, the FPC may want to consider utilizing an independent contractor to help perform these verification and testing procedures.
- 4) The FPC should consider developing a standardized form to be used by all of the field collection sites when recording the sampling data. The use of a standardized form would:
  - a) Help ensure that all field collection sites are reporting and recording data in the same manner and are utilizing consistent methods and calculations.
  - b) Streamline the FPC's ability to monitor, compare and verify data obtained from the field collection sites.

Due to the number of field collection sites and the different policies and procedures in effect at each location, we recognize that devising a standardized form that will be suitable and acceptable for each site may be difficult. Accordingly, it may be appropriate to utilize an independent, neutral third-party to assist in developing and implementing the standardized form.

\* \* \* \* \*

We were not engaged to, and did not, perform an audit, the objective of which would be the expression of an opinion on the specified elements, accounts or items. Accordingly, we do not express such an opinion. Had we performed additional procedures, other matters might have come to our attention that would have been reported to you.

**SYMONDS, EVANS & LARSON, P.C.**  
CERTIFIED PUBLIC ACCOUNTANTS

This report is intended solely for the use of the Commission and should not be used by those who have not agreed to the procedures and taken responsibility for the sufficiency of the procedures for their purposes.

*Symonds, Evans + Larson, P.C.*

November 3, 1997

## EXHIBIT I

As a result of applying the agreed-upon procedures as described in the accompanying report of independent accountants, we noted the following exceptions and corresponding causes:

### Rock Island:

1. Batch 97008:

Exception: Database and hand log show 1 mortality for Unknown Chinook-1. Daily Summary Report shows no mortalities for Unknown Chinook-1.

Cause: Programming error on Daily Summary Report.

### McNary:

1. Batch 97094:

Exception: Database, hand log and Daily Summary Report show 122,700 Unknown Chinook-0. Daily Sample Catch and Passage Index Report shows 22,700 Unknown Chinook-0.

Cause: Programming error resulted in shortened database field on Daily Sample Catch and Passage Index Report.

2. Batch 97117:

Exception: Database, hand log and Daily Summary Report show 113,620 Unknown Chinook-0. Daily Sample Catch and Passage Index Report shows 13,620 Unknown Chinook-0.

Cause: Programming error resulted in shortened database field on Daily Sample Catch and Passage Index Report.

### Lower Monumental:

1. Batch 97002:

Exception: Database and hand log show 1 mortality for Wild Chinook-1. Daily Summary Report shows no mortalities for Wild Chinook-1.

Cause: Programming error on Daily Summary Report.

2. Batch 97111:

Exceptions: Database shows 226 Hatchery Steelhead and 94 Wild Sockeye. Daily Summary Report shows 230 Hatchery Steelhead and 101 Wild Sockeye.

Cause: Site biologists omitted fish below a certain minimum length from their calculation. The biologists consider these fish to be non-migratory.

3. Batch 97115:

Exceptions: Hand log shows 3 Squawfish, whereas the Incidental Catch Report shows 2 Squawfish. Hand log shows 3 Rainbow Trout, whereas the Incidental Catch Report shows no Rainbow Trout.

Cause: Data entry errors at the field collection site.

Exception: Database and Daily Summary Report show Wild Steelhead average length of 110. Hand log shows Wild Steelhead average length of 135.

Cause: Site biologists omitted fish below a certain minimum length from their calculation. The biologists consider these fish to be non-migratory.

4. Batch 97016:

Exception: Database and Daily Summary Report show 1 descaled Wild Sockeye. Hand log shows no descaled Wild Sockeye.

Cause: Data entry error at the field collection site.

5. Batches 97016, 97024 & 97027:

Exceptions: Daily Summary Report shows doubled mortalities for all species counted as compared to the hand logs and database. Discrepancies were as follows:

<u>Batch</u>	<u>Species</u>	<u>Mortalities according to Daily Summary Report</u>	<u>Mortalities according to hand log and database</u>
97016	Hatchery Chinook-1	2	1
97024	Hatchery Chinook-1	14	7
97024	Hatchery Steelhead	8	4
97024	Wild Chinook-1	6	3
97024	Wild Steelhead	2	1
97027	Hatchery Chinook-1	4	2
97027	Wild Chinook-1	2	1
97027	Wild Steelhead	2	1

Cause: Programming error on Daily Summary Report.

**Little Goose:**

1. Batches 97002, 97016, 97024, 97027 & 97097:

Exceptions: Hand log average lengths differed from database and Daily Summary Reports average lengths as follows:

<u>Batch</u>	<u>Species</u>	<u>Average lengths according to</u>	
		<u>Database and Daily Summary Report</u>	<u>Hand log</u>
97002	Hatchery Steelhead	208	225.2
97002	Wild Steelhead	194	201.2
97016	Hatchery Chinook-1	128	125.4
97016	Wild Chinook -1	128	122.5
97016	Hatchery Steelhead	214	210.3
97016	Wild Steelhead	185	189.9
97024	Wild Steelhead	207	208.5
97024	Wild Steelhead	120	118.3
97024	Wild Steelhead	175	176.7
97027	Hatchery Chinook-1	162	163.2
97027	Hatchery Steelhead	200	200.9
97027	Wild Steelhead	184	174.9
97097	Hatchery Chinook-0	120	121.5
97097	Hatchery Steelhead	203	215.6

Cause: Site biologists omitted fish below a certain minimum length from their calculation. The biologists consider these fish to be non-migratory.

2. Batch 97016:

Exception: Hand log and database show no mortalities for Wild Chinook-1. Daily Summary Report shows 1 mortality for Wild Chinook-1.

Cause: Programming error on Daily Summary Report.

3. Batch 97024:

Exceptions: Daily Summary Report and database show 13,047 Wild Steelhead collected and 4,597 Wild Steelhead barged. Hand log shows 13,092 Wild Steelhead collected and 4,585 Wild Steelhead barged.

Cause: Subsequent changes were made to the hand logs by the field collection sites that were not reflected in the Daily Summary Report.

4. Batch 97027:

Exceptions: Hand log “bypassed” and “barged” numbers for Hatchery Chinook-1, Hatchery Steelhead and Wild Steelhead did not agree to corresponding numbers according to the Daily Summary Report. However, when combining bypassed and barged numbers, the hand logs and Daily Summary Reports agreed in total. Discrepancies were as follows:

<u>Species</u>	<u>Bypassed</u>		<u>Barged</u>	
	<u>Hand log</u>	<u>Daily Summary Report</u>	<u>Hand log</u>	<u>Daily Summary Report</u>
Hatchery Chinook -1	450	447	1,493	1,496
Hatchery Steelhead	48,000	47,680	20,980	21,300
Wild Steelhead	2,100	2,086	4,147	4,161

Cause: Subsequent changes were made to the hand logs by the field collection sites that were not reflected in the Daily Summary Report.

**Lower Grand Ronde:**

1. Batch 97013:

Exceptions: Hand log and database show 1 Wild Chinook-1 mortality, 2 Hatchery Steelhead mortalities and 1 Wild Sockeye mortality. Daily Summary Report shows no mortalities for these species.

Cause: Programming error on Daily Summary Report.

Exceptions: Hand log shows 1 Hatchery Chinook-0 and 1 Wild Chinook-0. Database and Daily Summary Report show no Hatchery Chinook-0 and 2 Wild Chinook-0.

Cause: Data entry errors at the field collection site.

2. Batch 97022:

Exception: Database and Daily Summary Report show 3 descaled Hatchery Steelhead. Hand log shows 8 descaled Hatchery Steelhead.

Cause: Data entry error at the field collection site.

3. Batches 97022 & 97030:

Exceptions: Cumulative passage numbers did not print on Daily Sample Catch and Passage Index Report.

Cause: Programming error on Daily Sample Catch and Passage Index Report.

4. Batch 97030:

Exceptions: Hand log and database show 122,400 Hatchery Steelhead and 14,200 Wild Steelhead collected. Daily Sample Catch and Passage Index Report shows 22,400 Hatchery Steelhead and 4,200 Wild Steelhead collected.

Cause: Programming error resulted in shortened database field on Daily Sample Catch and Passage Index Report.

5. Batch 97033:

Exception: Database and hand log show 1,900 Wild Chinook-1 collected. Daily Summary Report shows 208 Wild Chinook-1 collected.

Cause: Programming error on Daily Summary Report.

**John Day:**

1. Batches 97001 & 97010:

Exceptions: Average River Flow, Average Powerhouse 1 and Average Unit 3 amounts according to the hand log do not agree to database or Daily summary Report. Discrepancies were as follows:

<u>Batch</u>	<u>Source</u>	<u>River Flow</u>	<u>Powerhouse 1</u>	<u>Unit 3</u>
97001	Daily Summary Report and database	19.8	263.4	262.1
97001	Hand log	263.4	262.1	19.8
97010	Daily Summary Report and database	4.6	271.3	265.1
97010	Hand log	271.3	265.1	4.6

Cause: Data entry errors at the field collection site. Although these exceptions were noted by the FPC and the field collection site was notified, the errors were not corrected.

2. Batch 97021:

Exceptions: Hand log shows average lengths of Hatchery Steelhead, Wild Steelhead and Unknown Chinook-1 to be 208, 185 and 165, respectively. Database and Daily Summary Report do not show any average lengths for Hatchery Steelhead, Wild Steelhead and Unknown Chinook-1.

Cause: Data entry errors at the field collection site.



3. Batch 97091:

Exception: Daily Summary Report and hand log detail show 1 Wild Steelhead collected. Hand log summary page shows no Wild Sheelhead collected.

Cause: Error at the field collection site when transferring data to hand log summary page. (Note: Data on hand log detail and Daily Summary Report was correct.)

Exception: Hand log summary page was blank for average length of Unknown Chinook-0. Daily Summary Report shows average length of 102 for Unknown Chinook-0.

Cause: Field collection site did not transfer average length data from hand log detail to hand log summary page.

4. Batch 97105:

Exception: Hand log summary page was blank for average length of Unknown Chinook-0. Daily Summary Report shows average length of 99.

Cause: Field collection site did not transfer average length data from hand log detail to hand log summary page.

**Bonneville 1:**

1. Batch 97032:

Exception: Hand log shows 3 descaled Coho. Database and Daily Summary Report show 2 descaled Coho.

Cause: Data entry error at field collection site.

2. Batch 97040:

Exception: Daily Summary Report shows 2% descaled for Chinook-1. Hand log shows 18.2% descaled for Chinook-1. Based on observation and recalculation of hand log data, 2% is correct.

Cause: Error by field collection site in calculating descaled percentage.

Exception: Database and Daily Summary Report show Chinook-1 average length of 161. Hand log shows Chinook-1 average length of 141.

Cause: Site biologists omitted fish below a certain minimum length from their calculation. The biologists consider these fish to be non-migratory.

3. Batches 96065, 96074 & 97043:

Exceptions: Different sample rates were used between the hand log and the Daily Summary Report to estimate collected numbers. Sample rates used were as follows:

<u>Batch</u>	<u>Daily Summary Report</u>	<u>Hand log</u>
97043	.10905	.10000
96065	.06771	.08528
96074	.08565	.08888

Cause: Hand log used a daily sample rate, whereas Daily Summary Report used an hourly sample rate.

4. Batch 97113:

Exception: Hand log and database show 2 mortalities for Unknown Chinook-0. Daily Summary Report shows no mortalities for Unknown Chinook-0.

Cause: Programming error on Daily Summary Report.

**Bonneville 2:**

1. Batches 97022, 97024 & 97030:

Exceptions: As a result of performing our agreed-upon procedures, we noted various errors in these batches; however, such errors had already been detected by the field collection sites and were subsequently corrected.

Cause: Not applicable because errors were corrected.

**Lewiston:**

No exceptions noted.

**Whitebird:**

1. Batch 97033:

Exception: Although sampling was performed by the field collection site and was properly reported on the Daily Summary Report and hand log, the Daily Sample Catch and Passage Index Report reflected no sampling activity for the day.

Cause: Programming error on the Daily Sample Catch and Passage Index Report.

**Grand Ronde:**

1. Batch 97004:

Exceptions: Hand log and database show 2 Wild Chinook-1 and 1 Hatchery Chinook-1 sampled. Daily Summary Report shows 0 Wild Chinook-1 and 3 Hatchery Chinook-1 sampled.

Cause: Programming error on Daily Summary Report.

Exception: Daily Summary Report shows Hatchery Chinook-1 average length of 107. Hand log shows Hatchery Chinook-1 average length of 105.

Cause: Site biologists omitted fish below a certain minimum length from their calculation. The biologists consider these fish to be non-migratory.

**Imnaha:**

1. Batch 96055:

Exception: Hand log shows 2 Hatchery Steelhead mortalities. Daily Summary Report shows 0 Hatchery Steelhead mortalities.

Cause: Data entry error at field collection site.