

**APPENDIX K: Comments on Draft Annual Report and FPC Responses**



## FISH PASSAGE CENTER

2501 S.W. FIRST AVE. • SUITE 230 • PORTLAND, OR 97201-4752  
PHONE (503) 230-4099 • FAX (503) 230-7559

May 31, 1991

Rod Woodin  
WDF  
115 General Administration Bldg.  
Olympia, WA 98504

Dear Rod:

Thank you for taking the time to review the 1990 Fish Passage Center Annual Report. The error that you noted in the text was corrected.

Sincerely,

Michele DeHart  
Fish Passage Center Manager



JOSEPH R. BLUM  
Director



STATE OF WASHINGTON  
DEPARTMENT OF FISHERIES

115 General Administration Building, M.S. AX-11 • Olympia, Washington 98504 • (206) 753-6600 • (SCAN) 234-6600

FEB 1 1991  
FISH PASSAGE CENTER

February 14, 1991

Fish Passage Center  
ATTENTION: Michelle DeHart  
2501 SW First Avenue, Suite 230  
Portland, Oregon 97201-4752

**SUBJECT: Draft 1990 Fish Passage Center Annual Report**

Congratulation's to you and your staff for producing another excellent document. Your report provided clear, concise, and comprehensive documentation of an exceptionally complex program. The only error which I noted in my review was on page 63, line 6, where you report two recovery rates for wild Clearwater River steelhead. I assume that one of these rates is for some other group.

Keep up the good work. We look forward to working with you on the 1991 program.

Sincerely,

Rod Woodin  
Biologist  
Habitat Management Division

RW:dlm



## FISH PASSAGE CENTER

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May 31, 1991

Steve Pettit  
IDFG  
1540 Warner Ave.  
Lewiston, ID 83507

Dear Steve:

Thank you for your comments on the 1990 Fish Passage Center Annual Report. Because of the amount of data that would be used in each graphic we were not able to incorporate the graphics you suggested into the present report. However, we will be looking at ways to develop these graphics in a concise and understandable format for possible inclusion in future reports.

Sincerely,

Michele DeHart  
Fish Passage Center Manager

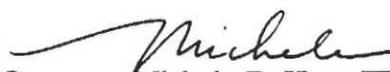


**FISH PASSAGE CENTER  
2501 S.W. First Ave., Suite 230  
Portland, Oregon 97201-4752**

**TELEPHONE LOG #91-20:**

CALL DATE: February 27, 1991                      TIME: 2:00 pm

CALL FROM: Steve Pettit, IDFG

CALL TO:  Michele DeHart, FPC                      PHONE #:

RE:                      Comments on the 1990 Fish Passage Managers Annual Report

Steve called and advised that two additional graphics might be helpful in the annual report. First, a graphic that compares volume runoff relative to percent of normal for key sites such as Grand Coulee, Rock Island, the Dalles, Dworshak, Brownlee and Lower Granite.

Steve also requested that we include a graphic that illustrates the time period the Snake River Water Budget was used, and the flows that resulted for all years.



## FISH PASSAGE CENTER

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May 31, 1991

Ed Buettner  
IDFG - Region 2  
1540 Warner Ave.  
Lewiston, ID 83501

Dear Ed:

Thank you for the very constructive comments you provided on sections of the draft 1990 Fish Passage Center Annual Report, pertaining to travel time in Lower Granite pool. From your comments, it could be seen that the discussions of smoltification effects were confusing, and as a result Section 2.a. (pages 62-68) have been extensively re-written. Health on the three Dworshak Hatchery steelhead groups could also affect recovery proportion, but we have no information of IHN in each raceway. The corrections you noted on PIT tag tables G-1 to G-6 were reviewed. Purse seine fish from April 17 remain excluded from the Snake River trap tables and comment to this fact is given in the footnotes. Your corrections on release and recovery numbers were incorporated. The three days before April 18 when only one hatchery steelhead per day was tagged, remain excluded from table G-5. The freeze brand release data in Table G-11 was updated to show corrected release numbers for LA-PP-1, RD-A-2 (steelhead), and LA-T-4; the median release date of Wallowa AP steelhead was corrected resulting in changes to travel time and migration speeds for that group. Trap efficiency groups (K brands) remain excluded. The release number corrections you showed for Asotin Cr. steelhead were in error, because they have not been adjusted for brand loss (unreadable brand proportion), as all other groups have been. The adjustment factors are 0.966 for LA-IC-4 and 0.942 for RA-IC-4. In addition, the unadjusted release number for RA-IC-4 was 19950 instead of 19905.

Thank you again for your review.

Sincerely,

Michele DeHart  
Fish Passage Center Manager





## FISH PASSAGE CENTER

2501 S.W. FIRST AVE. • SUITE 230 • PORTLAND, OR 97201-4752  
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May 31, 1991

Merritt E. Tuttle,  
Division Chief  
NMFS  
911 NE 11th Ave., Room 620  
Portland, OR 97232

Dear Merritt:

Thank you very much for your comments on the 1990 Fish Passage Center Annual Report. Your comments were constructive and were useful in improving the report. Most of the comments were accommodated by making the suggested changes and additions. Our specific responses to some of the comments are as follows:

**Page 59, paragraph 4:** The 30 fish was not a specific goal for the analysis. The precision of the estimated median was increased by increasing the numbers of fish available for analysis by blocking groups when possible. The text has been revised to reflect this intent.

**Page 62, Table 13:** This table was simply meant to be a presentation of the data collected for 1990. A review of the pooled data could be accomplished in a different publication.

**Page 71, Table 14:** Again the intent was to present the data collected for 1990. The suggested multiyear analysis would best be conducted for a specific group of fish across several years.

**Page 74, paragraph 3:** For the purpose of estimating travel time from a recovered group of PIT tagged fish, where the estimate of travel time is the median time of the recovered fish, an adjustment is not necessary for spill at McNary. By not expanding fish the computation of the 95% confidence interval was computed. You are correct that any further analyses concerning the recovery proportions would necessitate an adjustment for spill.

**Page 78, paragraph 3:** The number of fish was added to the text.

**Page 82, paragraph 3:** The suggested discussion has been included.

Sincerely,

Michele DeHart  
Fish Passage Center Manager





UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
ENVIRONMENTAL & TECHNICAL SERVICES DIVISION  
911 NE 11th Avenue - Room 620  
PORTLAND, OREGON 97232  
503/230-5400 FAX 503/230-5435

April 2, 1991 F/NWR5:301

APR 1991

Ms. Michele DeHart  
Fish Passage Center  
2501 S.W. First Ave, Suite 230  
Portland, OR 97201-4752

Dear Ms. DeHart:

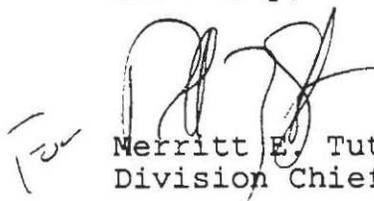
Thank you for the opportunity to review the 1990 Fish Passage Center Annual Report Draft. We found it to be an excellent report and our limited number of comments reflect that. We have the following comments for your consideration.

1. Page 3, paragraph 4, sentence 2: We suggest that the Mainstem Executive Committee be defined.
2. Page 10, paragraph 3, sentence 2: We recommend re-wording the second part of this sentence to read - illustrates the impact of the Water Budget on the reservoirs.
3. Page 37, Figure 5: We suggest that the nomenclature for DAF be specified in the Figure and text.
4. Page 39, paragraph 4, sentence 2: Please cite the reference(s) which indicates that levels above 115% dissolved nitrogen subject fish to gas bubble disease.
5. Page 45, paragraph 2, sentences 2 & 3: We propose the following alternate sentences - Significant numbers of sockeye, coho, and steelhead exhibited symptoms of the disease, with the highest incidence recorded in the group of steelhead released from the barge above John Day Dam. These fish passed John Day when 100% of the flow at the project was being spilled and dissolved gas levels reached 135% supersaturation. (The data reveal that other groups of fish in the river at that time were indeed impacted by the high levels of nitrogen, e.g. coho.)
6. Page 48, paragraph 2, sentence 8: We suggest re-wording this sentence to read - The 1990 annual passage index for each species was expected to be lower than in prior years, since passage levels tend to decrease at units farther from the Oregon Shore at John Day Dam.



7. Page 59, paragraph 4, sentence 2: Question - Why are recovery numbers of >30 fish used at Lower Granite while only >20 fish are used at McNary and John Day dams?
8. Page 62, Table 13: We found this table to be an adept presentation of the data. As an aside, we would like to see this with confidence intervals using data pooled from all years.
9. Page 71, Table 14: Question - Why is there no flow/travel time analysis for the groups of fish listed in this table?
10. Page 74, paragraph 3, sentence 5: Question - Why was there no adjustment for spill at McNary Dam in 1990?
11. Page 78, paragraph 3, sentence 3: We suggest you include the actual recovered numbers rather than merely referring to them as "low".
12. Page 82, paragraph 3: Please consider including a discussion of the system operational requests made for adult passage in 1990.

Sincerely,

  
Merritt E. Tuttle  
Division Chief



## FISH PASSAGE CENTER

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PHONE (503) 230-4099 • FAX (503) 230-7559

May 31, 1991

Russell L. George, P.E.  
Chief, COE - RCC  
P.O. Box 2870  
Portland, OR 97208-2870

Dear Russ:

Thank you for reviewing the 1990 Fish Passage Center Annual Report. Where appropriate your suggested comments were incorporated into the text. In particular, activities relative to adult fish passage are authorized through a Memorandum of Understanding between the Columbia Basin Indian Tribes and the participating agencies of the Columbia Basin Fish and Wildlife Council dated July 7, 1986. This document assigns the Fish Passage Center the responsibility for "implementation of adult and juvenile fish passage (hereinafter fish passage) at federal hydroelectric projects". In addition, the funding for the adult passage related activities has been provided to the FPC by the Fish and Wildlife Agencies since 1984.

With respect to spill monitoring and the determination of 90% passage dates, the prediction of a 90% date in-season or post-season is virtually impossible at some projects because of the way the projects are operated during the spill hours, which are coincident with the primary fish passage hours. Consistent monitoring of the population is not possible when there is no powerhouse passage. However, it is highly unlikely that spill occurred later than the 90% passage dates. The 90% passage dates developed for the Spill MOA were based on the historic monitoring information and represent an average of all previous data collected. In the case of summer spill periods they do not necessarily represent the historic 90% passage date, but a negotiated "improvement over status quo" 7 day addition to the arbitrary end date of July 15 in the Snake and August 15 in the Lower Columbia.

Sincerely,

Michele DeHart  
Fish Passage Center Manager





**DEPARTMENT OF THE ARMY**

NORTH PACIFIC DIVISION, CORPS OF ENGINEERS

P.O. BOX 2870

PORTLAND, OREGON 97208-2870

REPLY TO  
ATTENTION OF:

March 18, 1991

Water Management Division

Ms. Michele DeHart  
Fish Passage Manager  
Fish Passage Center  
2501 S.W. First Ave., Suite 320  
Portland, OR 97201-4752

Dear Ms. DeHart:

Our comments on your draft report are provided below, as requested in your letter dated January 23, 1991.

1. Title Page: Date of publication should be 1991.
2. "Introduction" section, page 1, paras. 1-3: Discussion states that FPC is assigned responsibilities on matters related to both adult and juvenile fish migrations. This should be clarified. FPC is established and its mission defined in Section 303 of the NPPC Fish & Wildlife Program. The Program specifies that FPC's responsibilities are related to the juvenile outmigration. How are activities related to adult fish passage authorized?
3. Page 2, bottom sentence: Sentence should be revised to read: "The primary purpose of the Work Group is to develop a Coordinated Plan of Operation (CPO) for using both the mid-Columbia River and Snake River Water Budgets for the current year."
4. Page 3, Section 1, para. 1, last sentence: Sentence should be revised to read: "The January water supply outlook indicated that 1990 would be a below average runoff year, but there was more water in storage than at this time in 1989."
5. Page 3, Section 1, para. 2: First sentence should be revised to read: "Water supply forecasts available at the second Work Group meeting...". Last sentence should be revised to read: "This action was expected to impact streamflows..." and "...Water Budget requests, and were considerations...".
6. Water Budget section: Your report should note that the draft 1990 CPO contained a stronger Corps commitment to provide flow augmentation for fish than had been stated in previous CPOs.

The draft 1990 CPO, Section 6.a.(3), stated that "DWR discharges in excess of the 10 kcfs powerhouse hydraulic capacity may be requested by the Fish Passage Managers subject to Water Budget availability. These higher flows up to a maximum release of 25 kcfs will be provided if required to achieve flows of up to 85 kcfs at LWG. Spill may be permitted at DWR to achieve LWG flows greater than 85 kcfs based on a case-by-case evaluation of hydrologic, power, biological conditions, and nonpower project uses."

7. Page 5, para. 1, "The final 1990 Water Budget CPO": Suggest deleting "...which means that all other recommendations by other work group members were rejected by the COE". Many of the "rejected" recommendations reflected agency positions that have resurfaced every year during Water Budget discussions. Sentence conveys unnecessary negative connotation.

8. Section II.C.1., pages 10 - 11: Sentences 2 and 3 of this paragraph should be moved to the previous section. These statements describe the Water Budget volume for the entire season, not just the first week.

9. Page 11, section 2.a., para. 2, line 3: Text should be revised to read: "...volume indicated by the April forecast could lead to reduction of flood control requirements."

10. "Water Quality" sections, pages 18, 20, 22, 25, 27, 29, 31, and 33: Report states that dissolved gas levels were consistently above 110% in the mid-Columbia River, without any concern expressed until the John Day spill at the end of May boosted levels up as high as 135% at The Dalles. If observed supersaturation levels less than the John Day spill extremes are not a concern to the Fish Passage Center, this should be so stated and explained.

11. Page 19, para. 3, line 11: "near 100 kcfs" should be 10 kcfs; this phrase refers to Dworshak rather than Lower Granite outflow.

12. Page 45, para. 1: According to the text, insufficient data were generated in 1990 to determine 90% passage dates. In implementing the NPPC spill amendments in 1990, all four spill projects had nightly spill until the latest possible date, rather than the 90% passage date. Considering the lack of data at some of the spill projects, is it possible that spill occurred more days than required by the spill amendments?

Thank you for the opportunity to review your report.  
Contact Bolyvong Tanovan or Rudd Turner of this office (326-  
3764) if you have questions on our comments.

Yours truly,



for Russell L. George, P.E.  
Chief, Reservoir Control Center



## FISH PASSAGE CENTER

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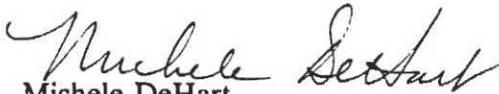
May 31, 1991

Paul Winborg,  
Chief, Operations Div.  
COE - Walla Walla  
Bldg. 602, City-Cty Airport  
Walla Walla, WA 99362

Dear Mr. Winborg:

Thank you for your comments on the draft 1990 Fish Passage Center Annual Report. Your suggestion was noted and the acknowledgement section now recognizes the COE as providing facilities.

Sincerely,

  
Michele DeHart  
Fish Passage Center Manager





DEPARTMENT OF THE ARMY  
WALLA WALLA DISTRICT, CORPS OF ENGINEERS  
WALLA WALLA, WASHINGTON 99362-9265

REPLY TO  
ATTENTION OF:

February 22, 1991

Operations Division

FEB 1991  
ENGINEERING  
CORPS

Ms. Michele DeHart, Manager  
Fish Passage Center  
2501 SW. 1st Avenue, Suite 230  
Portland, Oregon 97201-4752

Dear Ms. DeHart:

This letter is in answer to your general memorandum of February 22, 1991, requesting comments on your "Draft of the 1990 Fish Passage Center Annual Report." We only have two comments, both pertaining to the Acknowledgement Section:

- a. Acknowledgement of our cooperation through the fish transportation program is appreciated.
- b. We also provide facilities and accommodations for smolt monitoring activities at several of our dams. Mention of that cooperation would also be appreciated.

Thank you for the opportunity to comment on your draft annual report.

Sincerely,

*Paul F. Winborg*  
Paul F. Winborg  
Chief, Operations Division



## FISH PASSAGE CENTER

2501 S.W. FIRST AVE. • SUITE 230 • PORTLAND, OR 97201-4752  
PHONE (503) 230-4099 • FAX (503) 230-7559

May 31, 1991

Al Wright,  
Executive Director  
PNUCC  
101 SW Main St., Suite 810  
Portland, OR 97204-3216

Dear Al:

We thank you for taking the time to review the 1990 Fish Passage Center Annual Report. In response to your general comments we offer the following:

### Water Budget Section:

It is true that hatchery releases are occurring during much of the migration season and are reflected in increasing passage indices at downstream projects. However, when the Fish Passage Center considers responses in passage indices relative to changes in flow we look at both increasing and decreasing trends of all species at the time of the flow change relative to any hatchery releases. This will be addressed more fully when we speak directly to your specific comments.

### Spill Implementation:

The Fish Passage Center disagrees with the PNUCC regarding their statement as to the objective of the Spill MOA. The Spill MOA recognizes that load factoring can significantly affect the amount of spill at some projects. The MOA accounts for this in the calculation that allows for increasing the instantaneous spill percentage based on the percentage of daily average flow. The percent of daily average flow was the objective of the agencies and tribes who only agreed to the instantaneous flow when safeguards were built in to account for load factoring. The intent of the description in the Annual Report is to illustrate that the implementation of the spill agreement is often achieved with less than what the agencies and tribes intended. Furthermore, it is the responsibility of the FPC to provide the agencies and tribes with assessments of the implementation of the Spill Agreement, and to suggest additions or changes based on the past year's experience.

### Smolt Monitoring Program:

The conclusions drawn in the Smolt Monitoring Section are developed incorporating all the impacts of the assumptions. The Fish Passage Center cautions the reader to be aware of the assumptions, and that they have differing magnitudes of impact on the conclusions that can be drawn. These assumptions do not affect the "credibility" of the data collected in the SMP as insinuated by PNUCC.

### Smoltification Indices:

The FPC will continue to collect data and analyze the relationship between smoltification, flow and travel time. The FPC believes that smoltification plays an important role in determining how quickly smolts migrate through the system at different times in their development. This, however, does not imply that smoltification is more important than flow in determining a smolt's travel time.



In response to your specific comments:

**Page 4** - The second bullet refers to a method of Water Budget accounting that is preferred by the agencies and tribes. In this method the actual releases of water from Grand Coulee that are necessary to augment the present base flow, to the level requested for fish migration, would be debited to the Water Budget account. At present, all water above an arbitrary base flow of 76 kcfs at Priest Rapids is charged to the account.

**Page 4** - You apparently misunderstand the priority that we are addressing. The FPC does not ask for reservoir operating constraints to be violated. We have simply asked that reservoir refill be assigned a lower priority than fish migration needs.

**Page 6** - Incorporation of this type of language will be considered for future reports.

**Page 6** - We do not believe that is our place to change the base period used by the water management agencies, but to be consistent with what the water resource agencies are using.

**Page 6** - The runoff forecasts indicate what is available in the watershed for runoff into the mid-Columbia drainage for that year. No significant input of water occurs between these two projects. The official runoff volume forecasts are provided by the Columbia River Water Management group. You might ask them to change their reporting sites if this is necessary for your needs.

**Page 7** - See the above comment.

**Pages 10-33** - To the extent possible the discussion is limited to the week stated. However, the decisions made for a particular week are often influenced by conditions that occurred in the past, or are expected to occur in the future. It was the intention of this report to present for the uninformed reader all information that was used to derive a decision regarding Water Budget implementation.

**Page 11** - You will note that the 33 million refers to the number of hatchery fish released, not the number of fish transported.

**Page 14** - There is no sampling program at Priest Rapids Dam. The agencies and tribes will support only one monitoring site in the mid Columbia because of the dewatering, handling etc. necessary to sample fish. Furthermore, the intent of the mid Columbia Water Budget releases are to facilitate passage through the mid Columbia and to augment flow in the lower river. As stated previously the only particular significance of the Priest Rapids site is for the present accounting practice - one which would be far better if replaced with the actual release from Coulee.

**Page 14** - For your benefit we reiterate Section 302 of the NWPPC's Fish and Wildlife Program "...This larger water budget for Priest Rapids Dam increases the total size of the water budget from 67.8 kcfs-months to 78 kcfs-months and, together with the ability to shape the flows, improves the region's ability to meet optimum flows below the confluence of the Snake and the Columbia rivers."(emphasis added).

**Page 19 and 22** - The transport numbers were revised to match the 1990 FTOT report. They did not necessarily match the numbers you provided.

**Page 22** - The passage index data is reported for all species and stocks migrating. While it is true that there was a large increase of hatchery steelhead that may have been attributable to this release, there was also a large increase in the chinook and wild steelhead passage indices that could not be attributed to this release and were the response of the migrants to an increase in flow. Conclusions should not be drawn from only a portion of the information.

**Page 25** - See our previous comment regarding this subject. Once again, the point of the 220 kcfs at The Dalles is not accounting, but a lower river flow objective for fish migration.

**Page 26** - We are not sure of your interpretation of our statement regarding the reversion of these steelhead to parr. However, we wish to accommodate you in providing references to this subject which might help your understanding of the process. The suggested reading material includes: Adams *et al.*, 1975. Inhibition of salt water survival and NAK-ATPase elevation in steelhead trout (*Salmo gairdneri*) by moderate water temperature. Transactions of the American Fishery Society 104:766-769.

The authors provide the data for steelhead trout that indicates saltwater resistance was transient, and if fish were retained in freshwater after the usual time of migration they lose their ability to live in sea-water. This post-smolt decline in seawater tolerance has also been observed in coho and sockeye salmon and can be reviewed in the following:

Adams *et al.*, 1973. Temperature effect on parr-smolt transformation in steelhead trout (*Salmo gairdneri*) as measured by gill sodium-potassium stimulated ATP. Comparative Biochemistry and Physiology. 44A: 1333-1339.

Baggerman, B. 1960. Factors in the diadromous migration of fish. Symp. Zool. Soc (London), 1:33-60.

McInerney, J.E. 1964. Salinity Preference: an orientation mechanism in salmon migration. J.Fish. Res. Bd Canada 21: 995-1018.

**Page 27** - As stated previously there is language in the Program that addresses the need for lower River flows.

**Page 29** - Once again, it is important to consider all species. Subsequent to the increase in flow the passage indices for yearling chinook, sockeye and steelhead also increased. The increased smolt passage of these groups was not due to a hatchery release and it is this data in total that is considered before attributing an increase in passage indices to an increase in flow.

**Page 31** - Statements should not be taken out of the context in which they were placed. The week of June 4-10 is being discussed relative to what has happened previously i.e., the higher flows that began increasing at the end of May. The intent here is to build for the reader the scenario whereby the higher flows had moved the fish into the lower river. Peaks in fish had coincided with the higher flows.

**Page 32** - Once again it must be pointed out that the Fish and Wildlife Program does contain language referring to "optimum flows below" the confluence of the Snake and mid Columbia rivers.

**Page 33** - We believe that we have adequately demonstrated to you the extent of the information that is being considered when considering passage indices. We are uncertain of why you would think we were unaware of a particular hatchery release when we report weekly the hatchery releases in the Basin.

**Page 34** - See our general response to your comments.

**Page 35** - As stated previously, the interpretation of the "intent" of the Spill MOA appears to differ. The calculation of an instantaneous percent is based on the daily average flow. The report is intended to provide the reader with information regarding the past year's implementation. The FPC believes it has identified two areas where improvement could be made in the implementation of the MOA. First, the reliance on after the fact data to essentially guess what future flow and flow shaping

would be insufficient when the agency that could more accurately predict the evening flow will not be responsible. Secondly, the practice of extreme load factoring in the Snake that results in spill at 100% of instantaneous flow. We are not sure of the impact of this very low nighttime flow on the movement of fish through the reservoir. These problems are best illustrated by comparing the actual with the anticipated percent of daily average flow.

**Page 36** - As above.

**Page 36** - The Lyons Ferry release numbers have been added.

**Page 39** - Your questions regarding fliplips and the Flow Proposal are best addressed to the Columbia Basin Fish and Wildlife Agencies. They are beyond the scope of this report.

**Page 39** - The appropriate citations have been included in the text.

**Page 42** - The need to monitor and the monitoring program at The Dalles was developed by the Parties to the SPILL MOA. If PNUCC is not pleased with this program we suggest that you approach the Parties.

**Page 45** - The table has been corrected.

**Page 46** - The FGE estimate is based on the best available information and represents an average value over the season, weighted to the number of fish passing the project. The use of an "average" FGE value is consistent with the practice of the COE for determining spill levels at other projects. The "average" FGE was also used for determining spill levels that were then negotiated in the MOA.

**Page 48** - We disagree that conclusions drawn from trends in fish passage indices are questionable. The assumptions made are clearly outlined in the text, no further additions have been made to the language.

**Page 48 and Page 50** - Fish passage indices are used to evaluate changes in trends of species within and among years. We are aware of the changes that could be due to the occurrences you mention. However, as we stated previously changes in passage indices are interpreted in the context of many factors, going somewhat beyond the level you suggest.

**Page 63** - The language in the text has been altered.

**Page 75** - The referenced flows apply to the late April-May periods when PIT tagged groups were passing the project. This distinction has been added to the text.

**Page 82** - We are unsure of your objective in calling adult salmonid counts "artifacts". It is true that dam counts reflect changes in harvest and are actively used by salmon managers to adjust harvest to assure a particular escapement count over the dam. The management of fisheries on adults is closely monitored and is reflected in prompt changes in fishing seasons, catch limits, gear sizes, etc. If harvest rates are decreased and dam counts do not increase then the cause of the decline in stocks must be attributed to some other cause, possibly one that occurred during the downstream migration.

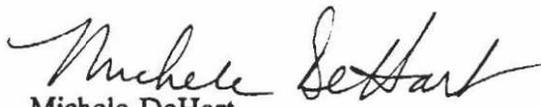
The sampling periods (8-hour, 16-hour, 24-hour) are dam specific, and are geared to yield a 95% accuracy of the particular count. The dates set for distinction between species are not arbitrary, but are based on data collected to date which is constantly being improved to reflect the new information. Perhaps we could forward your comments to the Technical Advisory Committee of U.S. vs Oregon for further comment. Keep in mind that the dam counts probably represent far better escapement data than is available for most other salmon fisheries.

**Page 83** - Jacks account for 10% or less of the spring and summer chinook runs. However, they can account for up to 50% of the fall chinook run. Since the purpose of the adult report is to compare adults they were removed from the fall chinook counts. We believe that if you would consult the report for the inclusive dates for the steelhead counts you would better understand the adult count data.

**Page 83** - There is no biological basis for comparing salmon and shad since shad are members of the clupeidae family, and are similar to herring. They share little in common with salmon other than that they are both anadromous fish. Lamprey also spawn and rear in fresh water and migrate to the sea, yet we would not want to base salmonid mitigation on that species. Shad are successful in reservoir habitats and tend to have wide geographic spawning grounds, spawn in open reservoirs and have a high fecundity (300,000 eggs per large female) whereas, salmon often migrate long distances to their natal streams, and have a much lower fecundity (up to 5000 eggs per chinook female). In other words, salmonids have evolved over thousands of years in free-flowing riverine environments and are not as well suited to reservoir environments as are shad.

There are no identified populations of shad that spawn a considerable distance up the Snake and migrate through eight hydroelectric projects on their journey to the sea as is the case for certain endangered salmon stocks. Furthermore, it is unclear if the increase in shad population can be attributed to the shad that migrate as far as Ice Harbor Dam, or are simply resulting from the population that spawns immediately above one or more of the lower Columbia dams.

Sincerely,



Michele DeHart  
Fish Passage Center Manager

February 25, 1991

FEB 26 1991  
FISH PASSAGE CENTER

Ms. Michele DeHart  
Fish Passage Center  
825 N.E. 20th Avenue, Suite 336  
Portland, Oregon 97232-2295

Dear Ms. DeHart:

PNUCC wishes to thank the Fish Passage Center for the opportunity to review the 1990 Draft Fish Passage Center Annual Report. We found the report to be informative and well written. The following comments focus on areas of the report we feel could use additional work. Specific comments are included in the attachment.

The FPC on several occasions draws the conclusion that increased passage indices are the result of increased flows. In our specific comments, we have cited FPC data which shows in many cases that a large hatchery release preceded an increase in passage at a downstream project. It is highly probable that the increase in passage is the result of a release, and that the Water Budget augmentation was requested by the FPC due to that release. We ask, is the increase in passage the cause or the effect of increased flow? Conclusions drawn in the Water Budget section should address the possible effects of hatchery releases on downstream passage indices.

In the spill section, the FPC uses daily average spill levels as the objective of the Spill Memorandum of Agreement. It is not the objective of the Spill MOA to achieve a predetermined daily average spill percentage. The objective of the Spill MOA is to achieve a specific instantaneous spill percentage outlined in the MOA (spill table - page 6, and adjusted by sections III B, 6 and 7). Any language in your annual report eluding to a daily average spill objective should be edited to address the objective of meeting the instantaneous spill level in the MOA. In your draft report on page 36, you conclude that:

*"The instantaneous spill percentage specified in the Agreement is 70%. With flat loading of the project, and a 12-hour spill period, this translates to 35% of daily average flow. The daily average spill percentage averaged approximately 32.4% of the daily average flow during the spring spill period (Figure 5). An instantaneous spill percentage of at least 70% had been implemented, but did not always result in the 35% daily average."*

This statement may give the impression that the Spill MOA was not successful, when in fact it has been implemented very successfully.

In the Smolt Monitoring section you qualify yourselves in the beginning by stating that there are a number of general assumptions to be made when analyzing data on a year to year basis, as well as from day to day. PNUCC agrees with the assumptions outlined in your report, but due to the limited explanation, we are unable to determine if all factors have been addressed. We understand the difficulty of drawing conclusions given our incomplete knowledge of fish biology, therefore we feel conclusions drawn from the SMP should be approached cautiously. It would be helpful if you could be more specific in regard to how you came to your conclusions.

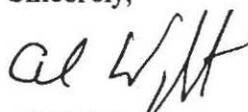
Ms. Michele DeHart  
February 25, 1991  
Page 2

PNUCC applauds your objective review of the relationship between release date (ATPase levels), and travel time. PNUCC feels very strongly that there is a much more complex relationship between flows, smoltification, travel time, and survival than what has been acknowledged in the past. We hope that future research and analysis is designed to evaluate these relationships and others which may or may not affect smolt survival during their migration to the ocean.

In summary, PNUCC encourages the FPC to address other variables which may induce smolt passage in the section regarding Water Budget implementation; rewrite the section on the Spill MOA to assess the objective of meeting instantaneous spill levels instead of daily average flows; qualify the credibility of the data collected in the SMP; and encourage the FPC to continue analyzing other variables which may affect travel time and smolt survival.

Once again, thank you for the opportunity to review your draft report.

Sincerely,

A handwritten signature in black ink, appearing to read "Al Wright". The signature is written in a cursive style with a large, sweeping "W".

Al Wright,  
Executive Director

Attachment

## FPC ANNUAL REPORT PNUCC COMMENTS

<u>Page</u>	<u>Par</u>	<u>Line</u>	<u>Comments</u>
4	3rd section		What does the second bullet mean? Will flows be increased out of Grand Coulee?
4	3rd section		How will a lower reservoir priority impact resident fish and resident fish measures currently under way, such as the Lake Roosevelt Kokanee Salmon Facilities being developed by the UCUTs, or the Hungry Horse measures being proposed by the MDFWP?
6	1	3	When referring to critical periods which occurred in the 1930s and 1940s, it may be helpful if you explain that there are several critical periods, such as the four-year period of 1929 to 1932, the two-year period of 1944 and 1945, the one-year period of 1937, etc.
6	2	2	Why not use 1973-1985 or 1990 as a base period for the mid-Columbia? This reflects upstream storage and how the water is managed now for flood control, power generation, and the Water Budget.
6	Table 1		Since Priest Rapids is the recognized accounting site in the mid-Columbia, why not use it in January to July runoff forecasts?
7	Table 2		See the above comment.
10-33	W.B. section		It would be much easier to follow the weekly reviews if you would only address issues which occurred during the week of discussion, and not the previous week.
11	3	1	The total number of fish transported by April 12 should total 37,018,610 rather than 33 million (see the first seven FPC weekly reports of 1990).
14	Fig. 3		Why show Priest Rapids flows and Water Budget usage compared to Rock Island passage indices? Wouldn't it be better to use Priest Rapids indices?
14	Fig. 3		As stated in past years by PNUCC, The Dalles is not recognized as a lower river control point in NWPPC's Fish and Wildlife program. Therefore it is inappropriate to give the reader the impression that it is. Please omit this and all material which refers to The Dalles as a Water Budget accounting project.

<u>Page</u>	<u>Par</u>	<u>Line</u>	<u>Comments</u>
19	4	2	According to the Corps of Engineers' data, the total number of fish transported by April 26 was 2,225,737 fish.
22	1	2	By May 3, the COE reported that a total of 5,420,241 fish had been transported (LWG - 3,771,122 fish, LGS - 735,420 fish, and MCN - 913,699 fish).
22	2		In this paragraph, you discuss how passage indices responded to increased flow due to a Water Budget request. You failed to mention that of the 383,000 fish reported at Lower Granite on May 9, nearly 314,000 of them were steelhead. These fish were likely the result of the Dworshak hatchery summer steelhead releases of May 3 and May 4 which totalled 1,224,832 fish (FPC weekly report 90-12, page 5). It is difficult to draw objective conclusions when all the data is not reported.
25	2	5	Your comment that the COE's decision to provide flows of 140 at PRD rather than the 220 at The Dalles is inappropriate. As stated many times before, The Dalles is not a Water Budget accounting site.
26	4	9	Please provide a literature citation which supports your claim that survival is decreased with a reduced level of smoltification (not just reverting to parr, but reduced smoltification).
27	6	3	Please see previous comments regarding a lower river Water Budget request.
29	2		As stated earlier, an increase in smolt passage does not necessarily reflect benefits of increased flow. In your statement you claim that increased Rock Island indices on May 31 were the result of high flows at Priest Rapids. Again you fail to mention that a substantial number of fish were released upriver. In this case, a total of 1,310,656 smolts were released from the Wells hatchery between May 22 and May 25. Please address these important issues objectively.
31	4	1	Please see your FPC weekly report 90-16, where you show subyearling chinook passage indices at The Dalles decreasing steadily from June 1 to June 8 (going from 5,090 fish to 367 fish). Likewise, both the index and collection counts at the Bonneville powerhouses are inconclusive.
32	1	3	The statement that the unused portion of the Priest Rapids account could have been used to augment flows at The Dalles the week of May 21 to May 28 should be deleted. It is not consistent with the language of the NWPPC Fish and Wildlife Program.

<u>Page</u>	<u>Par</u>	<u>Line</u>	<u>Comments</u>
33	2	3	You state that the plots in figure 3 illustrate the correlation between flows, and decreases and increases in smolt passage. As stated in earlier comments, you fail to acknowledge the influence of hatchery releases on smolt passage at downstream dams. In many cases the FPC requested flow augmentation due to these releases. The question can be asked, are passage indices increases the cause or the effect of increased flows?
34	Spill section		It is not the objective of the Spill MOA to achieve a predetermined daily average flow. The objective of the Spill MOA is to achieve a specific instantaneous spill percentage outlined in the MOA (spill table - page 6). Any language in your annual report eluding to a daily average flow objective should be edited to address the objective of meeting the instantaneous spill level in the MOA. By doing so, it will allow the reader to effectively evaluate the implementation of the Spill MOA.
35	2	6-10	The intent of the statement regarding BPA's and the A&T's definition of success is unclear. In the Spill MOA, it states: "The Parties shall honor requests by the Agencies and Tribes that are necessary for the implementation of this Agreement and consistent with this Agreement." Therefore, it appears that if BPA achieves the A&T's requested spill amounts, they have indeed been successful.
36	2	8-9	To say that "the adjusted spill percentage for fish averaged only 15.2% of the daily average flow for the summer spill period" is misleading. See the above comment.
36	4		It would be helpful to the reader if Lyons Ferry release numbers were given.
39	2	4	With increased flows (A&T's proposal) for fish, will fliplips be required at all dams in the future?
39	3	3-4	When referring to literature, please cite it in the text.
42	1	2	One gatewell at one unit does not constitute a reasonable, reliable method of indexing or monitoring smolts.
45	Table 7		The amount of spill for fish at Ice Harbor for the summer spill season should be 175 ksfd instead of 156 ksfd.
46	2	11	Since FGEs are so variable from day to day, and year to year, how can the level of spill for Bonneville Dam in last paragraph on page 43 be determined with any level of confidence?

<u>Page</u>	<u>Par</u>	<u>Line</u>	<u>Comments</u>
48	SMP section		You acknowledge that there are a number of assumptions to be made in order to compare indices from year to year, and from project to project. You should make it very clear that any conclusions drawn from these indices are questionable, and that the reader should focus on trends rather than actual numbers.
48	2	15	It may be helpful to the reader if you expand on the shortcomings of the Rock Island smolt collection system (i.e., the collection bias due to size).
50	1	10	Variance in collection efficiency could be due to high flows, size of fish, poor sampling procedures, or faulty freeze brands. Therefore, evaluation of passage indices year to year, and day to day make it difficult to interpret the results.
63	1	13	Increased survival due to decreased travel time is not supported by the literature, therefore it is pure speculation.
75	1	6-7	Priest Rapids flows averaged 129 kcfs from April 16 to April 22, and 234 kcfs from June 4 to June 10.
82	3	1	Adult salmonid counts are merely artifacts of offshore or downstream harvest management practices. Counts vary due to partial sampling periods (16 of 24 hours daily); arbitrary dates for identifying spring, summer, and fall chinook; gillnet or sea mammal losses; poaching, navigation lock passage, and sport fishing. In addition, delays caused by the enormous shad runs have not been studied yet.
83	Table 16		Why are jacks included for spring and summer chinook runs, and excluded from fall chinook runs? Steelhead counts for 1989 (COE published report) are inaccurate for McNary (170,500), Ice Harbor (151,100), and Priest Rapids (10,700).
83	Table 16		You should include shad counts. Shad are a non-indigenous species which are subject to turbine passage problems and predation common to salmon and steelhead. Unlike salmon, they are not subject to heavy commercial fisheries and are increasing. These trends may provide valuable insight to increase salmonid populations.

<u>Shad</u>	<u>1990</u>	<u>1989</u>	<u>10-Year Average</u>
Dalles	3,706,400	2,917,000	1,242,423
McNary	866,900	1,076,500	438,200
Ice Harbor	90,200	119,200	30,300
Priest Rapids	23,600	30,887	36,600

<u>Page</u>	<u>Par</u>	<u>Line</u>	<u>Comments</u>
82	5	10	Please include how many "surplus" eggs are transferred to other stations for reprogramming, or that are sold to net pen owners from lower Columbia River Mitchell Act hatcheries (Priest Rapids URB eggs 7.9 million/yr for 1989-90).
<u>General</u>			Throughout the report, subjective comments are made. This is not consistent with scientific reporting practices. Please remove these comments, or place them in a discussion section of the report.
			Please cite literature.



## FISH PASSAGE CENTER

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May 31, 1991

Dennis Rondorf  
USFWS  
Willard National Fish Hatchery  
Cook, WA 98605

Dear Dennis:

Thank you for your helpful comments on the travel time section in the draft 1990 Fish Passage Center Annual Report. The legend in Figure 11 was reversed and has been corrected, and sections were re-written where you noted confusion. You asked why the equations in Figure 11 for wild and hatchery steelhead did not have the race variable.

Actually, they do. The model was  $\ln TT = \ln B_0 + B_1 * Race + B_2 * \ln FLOW$ . When Race =  $\phi$ , the intercept is simply  $\ln B_0$ ; but when Race = 1, the intercept is increased by  $B_1$ . Taking the antilog of these equations resulted in the two equations shown in Figure 11 that have different intercepts and a common slope.

Sincerely,

Michele DeHart  
Fish Passage Center Manager

