

The ISRP's technical concerns requiring a response fell into seven general categories. The concerns, and associated response, are as follows for Project #1988-053-04:

- 1) **The lack of peer reviewed publications:** The publication of peer reviewed articles is a laudable goal for any M&E project. Personnel on this project are currently listed as co-authors on three publications which are either currently in draft form, or have been submitted for publication. Other independent authors have also used our data to publish their own peer reviewed publications, and independent consultants have presented our data at AFS and other professional fisheries forums. In the latter case, we were typically involved to the extent that we provided project data in specific user requested formats. This included either 1) summary tables in MS Word or 2) project data in MS Excel or MS Access databases. Project data has also been used to provide the baseline data for populating both BPA and privately funded models.

Throughout the course of this project we have generated a considerable amount of salmonid bio-data; in conjunction with bio-data collected under Project #1988-053-08. We believe this data would be suitable for publication in several peer reviewed articles. However, the problem we face on this project is that over the last four years we have been asked to do considerably more work on a budget that has remained essentially static; even though our overhead cost's have soared dramatically. The administrative component of the project has become exceedingly more complex to implement with the advent of 1) the NOAA fisheries permitting process, 2) PIT tag reporting, 3) the PICES reporting requirements, 4) the rolling Anadromous Fish Committee reviews, 5) the provincial reviews, 6) the program review, and 7) required coordination with the EDT and other basin wide modeling and data gathering efforts. Project implementation has also become more complex to implement over the years because various agencies, and other BPA funded contracts, have come to either implicitly or tacitly expect us to provide both in-season and historical user specific summaries of project data.

As a consequence, it is difficult to see how this project could meet the demands required to publish peer review articles without a significant increase in contract dollars. Particularly when we are contractually obligated to 1) complete project tasks on time and 2) generate a comprehensive annual report. Additionally, we are required to respond to various un-funded mandates which are essentially imposed on this project. We are currently at a point where the timely completion of project tasks assumes we will not have more than a minimal disruption in project personnel requirements through either attrition or the normal movement of personnel among projects. This problem will undoubtedly become more acute with a proposed reduction of 17% in our budget for the 2007-2009 fiscal years. The budget we initially submitted had already included a reduction in personnel time, and included no new work for the next three year cycle. The additional reduction of 17% will necessitate the elimination of some of our core work, and provides us absolutely no flexibility to take on any additional work.

This project has effectively met the challenges identified above, while completing project tasks within budget and on time. This project continues to collect quality data and respond to all public and private data requests for both in-season and historical data; typically within one to two days of the request. We also generate an annual report that continues to remain a comprehensive compendium of virtually all the biological data that has been collected, to date, under the umbrella of the

HRPP (i.e., on projects 1988-053-04 and 1988-053-08). We receive numerous requests for our annual reports, and it has been widely distributed within both the public and private sector.

- 2) **Project design post- Powerdale Dam:** We did not address how we propose implementing this project post- Powerdale Dam, primarily because the dam is not slated for removal until after the upcoming three year funding cycle. It is anticipated that dam removal will primarily impact the scope of our project (i.e., in terms of sample size), rather than our ability to effectively monitor the HRPP relative to its biological fish objectives. The HRPP's co-managers are currently developing facilities for collecting and bio- sampling upstream migrant adults escaping to each major fork of the Hood River subbasin. The proposed facilities are located at sites where it should be possible to accurately monitor subbasin spawner escapements of most indigenous populations of wild salmonids. This assumption is based on our project's radio telemetry data which indicates that most spring chinook salmon, summer and winter steelhead, and bull trout spawn above the proposed future sites for in-basin adult collection facilities. It is also believed that most sea-run cutthroat trout spawn above the proposed adult collection facilities located in the Middle and East forks of the Hood River. Relative to the ISRP's comments about the control of strays entering the Hood River subbasin, this project plays no active part in removing, managing for, or otherwise controlling strays entering the subbasin. However, the proposed adult collection facilities should allow us the opportunity to monitor the escapement of strays to the spawning grounds.

We will continue to operate and maintain downstream migrant juvenile traps in each of the major forks and tributaries of the Hood River subbasin; with the caveat that we are exploring the feasibility of operating an additional trap in each of the major forks (i.e., for the express purpose of increasing sample sizes). The migrant traps will be used to PIT tag salmonids and implement a mark and recapture program designed to estimate steelhead production from each fork. Operation of these traps will not be impacted by dam removal, nor will dam removal impact our ability to accurately estimate non-tribal harvest of salmon and steelhead. The primary concern is our continued ability to annually estimate subbasin smolt production. We consider this component of our project to be one of our highest priorities given the number of years over which we have been able to collect a continuous string of quality data. Our downstream migrant trap is currently located at the head of the forebay to Powerdale Dam and this site will probably not be suitable for trap operation once the dam is removed. One to three potential trapping sites exist in the lower mainstem of the Hood River post- Powerdale Dam, but they remain untested and could pose a challenge relative to the potential for a high rate of vandalism. We are currently working with a consultant to determine the feasibility of developing and constructing more permanent platforms for capturing, tagging, and bio- sampling downstream migrant salmonids in the Hood River subbasin.

- 3) **Lack of management recommendations stemming from data collected on this M&E project:**

The ISRP raised concerns over the apparent lack of published management recommendations, and more specifically the apparent lack of management recommendations that would provide the basis for developing guidelines for

minimizing the HRPP's impact on indigenous populations of fish in the Hood River subbasin. We included in the project proposal several of the more biologically important recommendations this project has made with respect to minimizing the HRPP's impact on indigenous populations of steelhead, but did not include all the recommendations. The following is a more comprehensive list of recommendations that have been made throughout the course of this project; as a direct consequence of our monitoring efforts.

General recommendations:

- a) **Collect scale samples from all salmon and steelhead collected at Powerdale Dam:** The mid-Columbia District of the ODFW floated a proposal to reduce bio-sampling efforts at the Powerdale Dam adult collection facility; primarily with respect to the collection of scale samples from jack and adult salmonids. The proposal was made around 1996, during the initial stages of implementing the HRPP. We suggested that since facility operators had the fish in hand, we should continue to collect scale samples from all salmonids escaping to the adult collection facility at Powerdale Dam. This proposal was accepted with the understanding that the M&E project would be responsible for maintaining both the scale samples and corresponding databases, and for analyzing the data. This recommendation was accepted and proved to be quite serendipitous when improved sampling techniques allowed us to utilize the scale samples in a pedigree study. The historical scale sample provided us with a 14 year sample of virtually all summer and winter steelhead escaping to spawning grounds in the Hood River subbasin.

- b) **Pursue opportunities for purchasing in-stream water rights:** During initial planning stages of the Hood River Habitat Plan (Coccoli and Lambert 2000), there existed an opportunity to purchase two in-stream water rights which dated back to 1905 (i.e., for 13 cfs and 29.3 cfs in the EFk Hood River) and one in-stream water for 2.5 cfs in Tony Creek which dated back to 1965. We proposed that purchase of these water rights be incorporated into the habitat plan as one potential option for increasing the subbasins carrying capacity for summer and winter steelhead. This recommendation was primarily based on the M&E program's subbasin smolt production data which was beginning to show a strong correlation between summer low flow and subbasin smolt production; irrespective of subbasin spawner escapements. This recommendation was not incorporated into the initial draft of the habitat plan based on the rationale that it did not fit in with the overall direction of the program. The first published version of the habitat plan mentions purchase of in-stream water rights as one option for increasing subbasin salmonid production capacity, but the recommendation was relegated to a fairly low priority (Coccoli et al. 2000).

Steelhead recommendations:

- c) **Re-evaluate and refine the HRPP's subbasin spawner escapement goals for adult summer and winter steelhead:** Around 1998, we recommended to the HRPP's co-managers that they consider reducing the adult spawner escapement goals for the Hood River subbasin from the 2,400 summer steelhead and 2,400 winter steelhead called for in the Hood River Master Agreement (Undateda). Our recommendation was based on a preliminary analysis of our annual estimates of subbasin smolt production, rearing density, and summer flow data. We

recommended that summer steelhead spawner escapement capacity be reduced to 600-900 adults and that winter steelhead spawner escapement capacity be reduced to 800-1,100 adults. The recommendation was dismissed at the time as pre-mature. We continued to offer the recommendation through 2000; at which time we presented our working hypothesis to the Independent Scientific Review Group (ISRG) at the 2000 provincial review. The working hypothesis proved to be highly controversial and was again dismissed as pre-mature. In 2003, BPA hired a consultant to implement a "Programmatic Review" of the HRPP. The consultant independently validated our sampling techniques and analysis, and arrived at a similar but somewhat lower estimate of the subbasins minimum spawner escapement capacity. The independent consultant determined that the subbasin's minimum spawner escapement capacity was 306 summer steelhead and 356 winter steelhead (Underwood et al. 2003).

In 2004, the HRPP's co-managers developed a draft proposal for expanding the HRPP (ODFW and CTWSRO Undatedb). The draft proposal included escapement goals to the mouth of the Hood River subbasin that represented a significant reduction from the original goals defined in the Hood River Master Plan (O'Toole and ODFW 1991a; O'Toole and ODFW 1991b). The draft proposal revised downwards the HRPP's subbasin escapement goals to 375 wild and 600 hatchery summer steelhead and 656 wild and 1,000 hatchery winter steelhead to the mouth of the Hood River subbasin. Goals were established to 1) allow the HRPP to meet it's broodstock collection needs, 2) maintain a 50:50 ratio of wild and hatchery adult steelhead escaping to the spawning grounds, and 3) support both tribal and non-tribal fisheries in the subbasin. The above escapement goals were designed to achieve subbasin spawner escapements of approximately 600 adult summer steelhead and 1,100 adult winter steelhead (i.e., after subbasin harvest). The revised escapement goals were still under consideration through June, 2006.

- d) **Re-evaluate and refine the HRPP's escapement goals for hatchery adult summer and winter steelhead:** Around 1997-1998, we recommended to the HRPP's co-managers that they consider reducing the hatchery adult escapement goals for the Hood River subbasin from the 6,800 hatchery summer steelhead and 3,800 hatchery winter steelhead called for in the Hood River Master Plan (O'Toole and ODFW 1991a; O'Toole and ODFW 1991b). Our revised escapement goals were based on a preliminary analysis of in-basin exploitation rates, smolt-to-adult survival rates, adult escapements, estimated subbasin spawner capacity, and straying rates of adult hatchery steelhead recycled through the fishery below Powerdale Dam. The intent of the recommendation was to 1) achieve hatchery adult steelhead escapements that more closely reflected subbasin spawner escapement and in-basin harvest needs and 2) minimize potential straying of excess hatchery adult steelhead not passed above Powerdale Dam. We continued to offer the recommendation through 2003. Results from the 2003 programmatic review of the HRPP substantiated our recommendation. In 2004, the HRPP's co-managers developed a draft proposal for expanding the HRPP (ODFW and CTWSRO Undatedb). Included in the draft proposal were revised escapement goals to the mouth of the Hood River subbasin. The draft proposal revised downwards the HRPP's original subbasin escapement goals to 600 hatchery summer steelhead and 1,000 hatchery winter steelhead.
- e) **Re-evaluate and refine protocols for recycling hatchery summer and winter steelhead through the fishery located below Powerdale Dam:** Around 1998-1999, we recommended to the HRPP's co-managers that they develop protocols for

reducing the number of hatchery summer and winter steelhead that were recycled through the fishery below Powerdale Dam. The recommendation was based on an analysis of 1) the exploitation rate of recycled hatchery steelhead; 2) the frequency at which some recycled adults returned to Powerdale Dam; 3) the high percentage of "lost" recycled adults, and 4) the number of recycled adults recovered in other subbasins (i.e. strays). This recommendation was generally dismissed. We continued to offer this recommendation through 2000; at which time we offered our findings to the ISRG at the 2000 provincial review. The provincial review provided no consensus that this program represented a potential biological risk and the practice continued through 2004; with few exceptions. The HRPP's co-managers agreed in 2004 to implement a standard protocol which required that recycled hatchery steelhead would, within certain constraints, be transported and released into a pre-defined closed water body (i.e., within the basin) upon their third return to the adult collection facility at Powerdale Dam. Over the last four years (i.e., 2004-2006), the HRPP's co-managers have also generally reduced the number of hatchery summer and winter steelhead smolts released into the subbasin; effectively reducing the potential number of returning adults that will need to be recycled through the sport fishery (see **Recommendation d**).

- f) **Collect winter steelhead hatchery broodstock entirely from the wild run of winter steelhead:** Beginning with the 1995-1996 run year, the HRPP's co-managers proposed incorporating Hood River stock hatchery winter steelhead into the winter steelhead broodstock. We recommended that the HRPP continue to utilize only wild adult winter steelhead for broodstock; as long as escapements were sufficient to achieve spawner escapement goals. This recommendation was based on an analysis of 1) wild and hatchery run timing data and 2) the very real potential for incorporating stray hatchery summer steelhead into the winter steelhead broodstock. The analysis suggested that the HRPP would significantly increase the likelihood for having a detrimental impact on the indigenous wild winter steelhead population if the HRPP implemented a hatchery protocol for incorporating Hood River stock hatchery adults into the broodstock. We presented our run timing analysis at the 2000 provincial review, but no concern was expressed relative to any potential biological risk to the indigenous wild population.

Beginning with the 2000-2001 run year, the HRPP's co-managers implemented the above recommendation after a technical committee, comprised of personnel from several agencies, reached the conclusion that it would probably be biologically prudent to discontinue the practice of incorporating hatchery winter steelhead into the winter steelhead broodstock. Recent unpublished data, collected on the HRPP's pedigree study (BPA Project #2003-054-00) through the spring of 2006, tends to corroborate the premise upon which this recommendation was made. Preliminary DNA analysis of wild x hatchery pairings in the winter steelhead broodstock tend to indicate that F1 progeny of wild x hatchery crosses of winter steelhead may be significantly less genetically fit than F1 progeny of wild x wild crosses of winter steelhead (personal communication on 7/10/2006 with Mike Blouin, Oregon State University, Corvallis, Oregon).

- g) **Do not begin collecting hatchery winter steelhead for broodstock until the third wild adult winter steelhead returns to the Powerdale Dam adult collection facility:** The HRPP collected hatchery winter steelhead for broodstock from the 1996-2000 broods. During this period, no protocols were

established for determining when to begin collecting hatchery adults for broodstock. The above program was initially implemented based on the assumption that broodstock collection would begin with the first wild and hatchery steelhead that were classified as winter run fish at the adult collection facility located at Powerdale Dam. As a consequence, a hatchery steelhead returning during the latter two weeks of November was collected for hatchery winter steelhead brood because 1) it had a valid Hood River stock winter steelhead mark combination and 2) the trap operators visually classified the fish as a winter run steelhead. This appeared unusual at the time because prior to the 1995-1996 run year, wild winter steelhead had not showed up at Powerdale Dam until mid-December. We hypothesized that this hatchery adult was either a mis-identified stray summer steelhead, or a hybridized summer x winter cross in the HRPP's hatchery program. We suggested that this hatchery adult not be used for brood, which it was not, and we proposed that hatchery adult "winter steelhead" not be collected for brood until the third wild winter steelhead was collected for brood. The HRPP's co-managers implemented this recommendation, beginning with the 1997-1998 run year, after two CWT adult steelhead collected for winter brood in previous run years were found to be hatchery summer steelhead originating from Dworshak National Fish Hatchery.

- h) **Do not begin collecting wild winter steelhead broodstock until the third wild adult winter steelhead is passed above Powerdale Dam:** Prior to the 1996-1997 run year, wild winter steelhead were never observed at the Powerdale Dam adult collection facility until mid-December. Beginning with the 1996-1997 run year, a few adult steelhead returning prior to mid-December were classified each year as wild winter steelhead, with one adult wild "winter steelhead" entering as early as the first two weeks of October. As with any hatchery program, there was a temptation to collect these early returning fish for hatchery broodstock. The rationale being that as run sizes increased in response to the HRPP, the bell shaped curve for wild run timing would naturally move forward. However, a preponderance of data collected throughout the study indicated that these fish were either mis-identified summer steelhead, or were the progeny of summer x winter crosses in the hatchery broodstock. We recommended in 1995 that a minimum level of protection could be provided the wild run if no wild winter steelhead were collected for hatchery brood until after the third wild fish entered the adult collection facility. This recommendation was accepted as a standard operational protocol in 1997.
- i) **Release winter steelhead smolts in the East and Middle forks of the Hood River and summer steelhead smolts in the West Fork of the Hood River:** During the development stages of the HRPP, co-managers were considering options for releasing hatchery summer steelhead smolts in the East and Middle forks of the Hood River and hatchery winter steelhead smolts in the West Fork of the Hood River. The problem was that the preponderance of anecdotal data suggested that the indigenous wild winter steelhead population was solely located in the Middle and East forks of the Hood River and that the indigenous wild summer steelhead population was located in the West Fork of the Hood River. Also, pre- HRPP this is the way the drainage was managed. We implemented a radio telemetry study in 1994 (i.e., the first year of the M&E program) to more accurately define the spatial distribution of each population. Results from the study showed a clear geographic demarcation between the two populations. Based on the data, we recommended to the HRPP's co-managers that hatchery

summer steelhead smolts only be released in the West Fork of the Hood River and that hatchery winter steelhead smolts only be released in the East and Middle forks of the Hood River. This recommendation was accepted in 1995 when BPA incorporated this recommendation as a standard hatchery supplementation protocol in the HRPP's NEPA document.

- j) **Develop more quantitative protocols for minimizing the incorporation of summer and winter races of steelhead into the wrong broodstock program:** Run timing and CWT recovery data collected on the M&E project caused increasing concern that the HRPP's hatchery program was hybridizing a small number of summer and winter steelhead in the hatchery brood. We recommended around late 2003 to early 2004 that program cooperators determine if Hood River stocks of wild summer and winter steelhead are genetically dissimilar. This recommendation was made in an attempt to move away from the somewhat subjective classification protocols for identifying race of steelhead, to a more quantitative based set of protocols. A preliminary analysis of DNA samples, taken from both summer and winter steelhead, indicated that at a 95% level of confidence we could distinguish between both races of steelhead, at the genetic level. Beginning with the 2005 brood, DNA analysis has been used to determine the race of all steelhead collected for hatchery broodstock. Adult steelhead are not utilized for hatchery brood unless the DNA analysis confirms the initial visual identification of an adult steelhead's race. Baseline data for the DNA analysis was obtained on this project from fin samples taken from steelhead smolts sampled at downstream migrant traps operated in each major fork of the Hood River.
- k) **Pursue negotiations with the East Fork Irrigation District (EFID) to use the districts settling pond for an acclimation facility:** Around late 1994 to early 1995, we began looking at the settling ponds in the EFID's diversion as a possible acclimation site for hatchery winter steelhead smolts. We took our contracting officer on a tour to explain the potential for: 1) being a cost efficient site and 2) a cooperative effort with private enterprise. We discussed the option with the manager of the EFID and with the HRPP's co-managers. The HRPP's co-managers indicated this was not the direction they wished to take and the recommendation was dropped. In 1996, the Confederated Tribes of the Warm Springs Reservation of Oregon (CTWSRO) began showing renewed interest in our recommendation and developed the settling ponds, which were used to acclimate the 1996 brood hatchery winter steelhead smolts that were released into the Hood River subbasin in 1997. Hatchery winter steelhead smolts continued to be acclimated in the settling ponds through 2006.
- l) **Do not pass adult summer and winter steelhead above Powerdale Dam unless they have a valid mark combination for production releases in the Hood River subbasin:** We actively passed Hood River stock hatchery winter steelhead above Powerdale Dam, beginning with the 1995-1996 run year. We recommended to the HRPP's co-managers that no hatchery adults be passed above Powerdale Dam unless the mark combination was completely valid for a Hood River production release. This recommendation was accepted for the hatchery winter steelhead program and was also implemented for Hood River stock hatchery summer steelhead when they began returning to the Hood River subbasin, beginning with the 2001-2002 run year.
- m) **Adult summer steelhead from the 1998 brood release should not be passed above Powerdale Dam:** The 1998 brood release was the product of spawning 7 females

with 2 males. The potential for inbreeding caused us concern and we recommended to the HRPP's co-managers that adults returning from this brood should not be passed above Powerdale Dam. The HRPP's co-managers accepted this recommendation after a technical committee indicated that the recommendation represented a biologically prudent course of action.

- n) **Sequester the left and right maxillary clips for releases of Hood River stock summer steelhead smolts and the left and right ventral fin clips for releases of Hood River stock winter steelhead smolts:** The HRPP alternated between various ventral and maxillary clip combinations on consecutive brood releases of Hood River stock hatchery winter steelhead. This was not a problem until the HRPP began implementing the Hood River stock hatchery summer steelhead program. Run timing and CWT recovery data collected on the M&E project heightened our concern that the HRPP's hatchery program would have an increasingly high potential for hybridizing small numbers of summer and winter steelhead in the hatchery brood; as Hood River stocks of both summer and winter steelhead began returning to the subbasin. As a consequence, we proposed that the HRPP sequester the maxillary clip for production releases of Hood River stock hatchery summer steelhead and the ventral clip for production releases of Hood River stock hatchery winter steelhead. This recommendation was primarily intended to 1) minimize the potential for mis-identify the race of steelhead collected for hatchery broodstock and 2) minimize the potential for passing non-indigenous hatchery stocks above Powerdale Dam. This recommendation was made in 1998 and was implemented for marking the 1998 broods of hatchery summer and winter steelhead smolts. The recommendation was again made and implemented for both the 1999 and 2000 brood releases. The recommendation was established as a standard hatchery protocol beginning with the 2001 brood releases of summer and winter steelhead smolts.
- o) **Discontinue passing Skamania stock adult summer steelhead above Powerdale Dam:** In early 1995, we recommended to the HRPP's co-managers that the HRPP discontinue passing Skamania stock adult summer steelhead above Powerdale Dam. This recommendation was made based on what appeared to be a major conflict between the stated goals of the HRPP, and the potential negative biological consequences of the above action. The HRPP's co-managers implemented the recommendation in the summer of 1998.
- p) **Discontinue releasing Skamania stock summer steelhead smolts in the West Fork of the Hood River:** Skamania stock summer steelhead smolts were released in the West Fork of the Hood River as part of ODFW's hatchery supplementation program for the Hood River subbasin. We recommended in early 1997 that the ODFW should consider discontinuing this production release, because the policy appeared to be in major conflict with the stated goals of the HRPP. The recommendation was implemented in 1997. The 1997 production release of Skamania stock summer steelhead, and all subsequent releases through 2006, were made below Powerdale Dam. Subsequent to the 1997 production release, no non-indigenous stocks of either hatchery summer or winter steelhead smolts have been released above Powerdale Dam.

Spring Chinook Salmon:

- q) **Re-evaluate and refine the biological fish objectives associated with the Hood River subbasin's current carrying capacity estimate for jack and adult spring chinook salmon:** Around 1998, we recommended to the HRPP's co-managers that

they consider re-evaluating the Hood River subbasins spawner escapement goals for jack and adult spring chinook salmon. This recommendation was made based on a preliminary analysis of our annual estimates of subbasin smolt production, rearing density, and escapements to Powerdale Dam. The HRPP was initially implemented under the assumption that the subbasins spawner escapement capacity was 400 naturally produced spring chinook salmon (ODFW and CTWSRO Undateda). Our initial recommendation was to lower the subbasin spawner capacity to around 100-200 spring chinook salmon. The recommendation was dismissed as pre-mature. We continued to make the recommendation through 2003; at which time BPA hired a consultant to implement a "Programmatic Review" of the HRPP. The consultant independently validated our sampling techniques and analysis, and arrived at a similar but somewhat lower estimate of the subbasins minimum spawner escapement capacity. The consultant's analysis indicated that the subbasin's minimum spawner escapement capacity was around 64 spring chinook salmon.

In 2004, the HRPP's co-managers developed a draft proposal for expanding the program's hatchery facility at Parkdale (ODFW and CTWSRO Undatedb). The draft proposal included escapement goals to the mouth of the Hood River subbasin that represented a significant reduction from the original goals defined in the Hood River Master Plan (O'Toole and ODFW 1991a; O'Toole and ODFW 1991b). The draft proposal revised downwards the HRPP's subbasin escapement goals to 128 wild and 750 hatchery spring chinook salmon (ODFW and CTWSRO Undatedb). Goals were established to 1) allow the HRPP to meet its broodstock collection needs and 2) support both tribal and non-tribal fisheries in the subbasin. The above escapement goals were designed to achieve subbasin spawner escapements of approximately 100 natural and 200 hatchery spring chinook salmon (i.e., after harvest; ODFW and CTWSRO Undatedb). The revised escapement goals were still under consideration through June, 2006.

- r) **Use different mark combinations for spring chinook salmon smolts released in the Middle and West forks of the Hood River:** The HRPP's co-managers initially proposed marking all subbasin hatchery spring chinook salmon production in the Hood River subbasin with only a single adipose clip. We recommended differentially marking releases in the Middle and West forks of the Hood River to provide an opportunity to evaluate smolt-to-adult survival rates for production releases in each fork. This recommendation was accepted beginning with the first release of production groups in both forks of the Hood River; and continued to be the policy of the HRPP through 2006.

- s) **Collect hatchery spring chinook salmon brood entirely from Deschutes stock hatchery jack and adult spring chinook salmon returning to Powerdale Dam:** Around 2004-2005, the HRPP's co-managers began discussing options for collecting hatchery spring chinook salmon broodstock from the Hood River subbasin. One proposed option included collecting hatchery broodstock from the naturally produced component of the run. We proposed an alternative recommendation that hatchery broodstock be collected entirely from the hatchery component of the run, rather than from a natural run that rarely exceeded annual escapements of 120 jack and adult salmon. The case we made for accepting this recommendation was based on the fact that current escapements of naturally produced spring chinook salmon 1) fall far short of meeting the HRPP's requirements for hatchery broodstock and 2) fall far short of the HRPP's defined spawner escapement goal of 400 naturally produced fish. It also seemed to make little biological sense for the HRPP to heavily mine

the natural run for hatchery broodstock; particularly when the re-introduced population is probably still in the early stages of adapting to the Hood River subbasin. The latter assumption was made based on recommendations stemming from the HRPP's Programmatic Review conducted in 2003. Conclusions drawn from the analysis of biological data collected under the umbrella of the HRPP indicated that F1 progeny of naturally spawning Deschutes stock hatchery spring chinook salmon may stray at a much higher rate than the F1 progeny of naturally produced spring chinook salmon that spawn in the wild. The HRPP's co-managers accepted the above arguments and made the decision to establish the protocol that all hatchery spring chinook salmon broodstock would be collected entirely from the hatchery component of the run. It was also decided that this protocol would then be re-evaluated when the natural run achieved the HRPP's subbasin spawner escapement goal.

- t) **Re-evaluate the HRPP's production goals for hatchery spring chinook salmon smolt releases in the Middle Fork of the Hood River:** The HRPP's co-managers proposed releasing hatchery spring chinook salmon into the Middle Fork of the Hood River (MFk) subbasin, beginning in 1999. We recommended that co-managers reconsider releasing hatchery production groups into this fork based on the rationale that 1) the MFk currently supports a population of wild winter steelhead that is listed as threatened under the Endangered Species Act, 2) no salmon were ever trapped in our MFk downstream migrant trap (i.e., prior to supplementation), 3) **"local state and tribal biologists indicated that use of the East Fork and main stem Middle Fork by spring chinook is either non-existent or very limited"** (Underwood et al. 2003) -- raising 'the question of **"Why not?"**' (Underwood et al 2003), and 4) the Programmatic Review in 2003 indicated the MFk had limited parr capacity. The HRPP continued to supplement the MFk of the Hood River through the 2004 brood release.

The above list of recommendations made on this M&E project does not represent a complete list, but does include the most biologically important recommendations made throughout the course of this project. It should be noted, however, that this M&E project did publish several recommendations in the 1994 annual report (i.e., the first year of this project). The section in the draft annual report was initially called a "Recommendations" section, but was changed to an "Issues of Concern" section after review by the HRPP's co-managers. The controversy that ensued as a result of including the "Issues of Concern" section in our annual report resulted in our decision to limit programmatic input to the various coordination and technical meetings held annually. At these meetings, we typically provided co-managers with both the rationale and biological data upon which our recommendations were being made, and then relied on the HRPP's co-managers to assess which recommendations they deemed biologically prudent to implement. This process proved to be a considerably more amenable forum upon which to provide this projects input on options for implementing the HRPP in a biologically sound manner.

- 4) **Objectives are often simply superficial escapement goals:** This project has only one objective. This objective was clearly defined in the first paragraph of Section F as follows:

"determine if the Hood River Production Program has achieved its biological fish objectives relative to populations of wild and hatchery salmonids in the Hood River subbasin."

The Hood River subbasin's defined numerical fish objectives were incorporated into Section F immediately after the above sentence. We included the biological fish objectives in our project proposal in order to provide reviewers the framework for our evaluation.

- 5) **The objectives and methods sections were presented more as lists than as integrated pieces of work, leaving the reviewer to infer linkages and relationships:** I presume this comment relates to information provided in Sections B and F; in which case I'm not entirely sure how to respond after having re-read these sections. Unless I'm entirely missing the point of the ISR's comments, it appears that we clearly identified: 1) this project's objective (see **Response 4**), 2) the Hood River subbasin's numerical fish objectives that will be used as the basis for our evaluation of the HRPP (Section F), 3) the location of our sampling sites (Section F), 4) the underlying rationale for our proposed sampling efforts (Section F), 5) the statistical power of our existing data set (Section F), 6) a suite of seven unique inter-related strategies that we propose implementing to evaluate the HRPP relative to its performance goals (Section B), and 7) the critical linkages between the strategies, sampling methods, and the defined data deliverables (Sections B and F).

Section F (Proposal biological objectives, work elements, and methods) was primarily intended to provide the reader with the information required to determine how we proposed collecting the information required to achieve the project's stated objective (see **Response 4**); as per our interpretation of proposal instructions. However, we did not strictly limit our discussion to the above information request. We included in our proposal a fairly detailed description of 1) where we propose implementing our sampling efforts, 2) anticipated sample sizes (i.e., based on past sampling efforts), and 3) how project data will be used to achieve our stated objective. Included in the above discussion was a fairly detailed description of how this project's various data gathering efforts will be used to: 1) provide information which has regional application in evaluating other programs and projects outside the subbasin and 2) develop predictive tools for both managing and implementing the HRPP. We also specifically identified several models currently under development on this project, and included a broad overview of trap efficiencies, confidence limits, and correlation coefficient's associated with specific types of summary data which have been used fairly effectively over the years to evaluate the HRPP relative to its performance goals (see **Response 3**). The latter information was primarily intended to allow reviewers the ability to quantitatively evaluate our project relative to the quality of data collected throughout the course of this project.

Section B (Technical and/or Scientific Background) was where we identified various strategies we propose implementing to achieve the project's stated objective; as per our interpretation of proposal instructions. Seven unique strategies were identified in Section B. These strategies were designed to provide the information required to evaluate the HRPP on both a basin wide and regional basis. Each strategy 1) outlined the rationale for implementing the strategy, 2) defined how the strategies were addressing specific data needs identified in the Hood River Subbasin Plan (Coccoli 2004), 3) cross linked each strategy to the Hood River Subbasin Plan (Coccoli 2004), and 4) clearly identified, in both italics and boldface, the various linkages between each strategy relative to providing the core set of data required to achieve the project's stated objective. The various strategies specifically referenced up to four other strategies and attempted to

explain the critical data gathering linkages. Additionally, each strategy in Section B included a brief discussion of 1) this project's biological data gathering requirements relative to the corresponding strategy and referenced linkages, 2) why we are collecting the data, and 3) how the data will be used to evaluate the HRPP relative to its stated numerical biological fish objectives (i.e., as stated and defined in Section F). Additionally, specific strategies identified how we are proposing to integrate our project with more regional data gathering efforts in the Columbia River Basin.

- 6) **Escapement goals differed from the Hood River Master Plan and EDT:** The HRPP's escapement goals have evolved since the Hood River Master Plan was submitted in 1991. These changes are a result of the cumulative body of M&E data collected throughout the course of this project. This data has allowed the HRPP's co-managers to more quantitatively refine subbasin specific estimates of juvenile and adult carrying capacity and salmonid survival rates. A programmatic review of the HRPP, which was conducted in 2003, set the framework for re-evaluating the HRPP's initial escapement goals (see **Response 3**). The consultant implementing the programmatic review used their Unit Characteristic Method (UCM) model to estimate production capacities for the subbasin. The biological fish objectives in the Hood River Subbasin Plan (Coccoli 2004) were then initially updated from estimates in the Hood River Master Plan (O'Toole and ODFW 1991a; O'Toole and ODFW 1991b), based on the UCM's output. The process involving the Ecosystem Diagnosis and Treatment (EDT) model occurred after the programmatic review and resulted in escapement estimates that differed somewhat from the UCM model. The Hood River subbasins production capacity continues to be refined, but with respect to our proposal, we presented the biological fish objectives defined in the Hood River Subbasin Plan (Coccoli 2004); as per our interpretation of the proposals instructions.

- 7) **The question of whether the supplementation programs for summer and winter steelhead and chinook are working is never addressed:** We have attempted to address this question in numerous forums throughout the course of this project, and no matter how we have approached this topic it has always proven to be a very politically charged course of action. In our proposal, we chose to provide all the tables and information required for the reviewers to evaluate this question. We have always felt that this project's primary role is to provide fisheries managers with the necessary information and tools required to 1) evaluate the HRPP and 2) implement the program in a biologically sound manner (see **Response 3**). In the proposal process, we relied on the HRPP's co-managers to address the overall question of program performance in those proposals that primarily pertain to the management and implementation of the HRPP.

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