Potential Smolt Yield of Anadromous Fish From Subbasins Above the Hells Canyon Complex (E. 3.1-2, Chapter 8)

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I. Introduction

This chapter applies the various paradigms developed in chapter 7 (Table 15). Using these paradigms, the Applicant estimated potential smolt yields from subbasins and from reaches of the mainstem Snake River upstream and within the Hells Canyon Complex.

Smolt yield was calculated under three options. Option A estimates potential smolt yield if passage were to become available at all of the Applicant's mainstem Snake River dams beginning at the Hells Canyon Complex.

Option B estimates potential smolt yield if passage were to become available at all mainstem dams that the Applicant owns on the Snake River, as well as at all other manmade obstacles that would present a barrier to fish moving upstream or downstream beginning at Hells Canyon Complex.

Option C estimates potential smolt yields from the portion of the historical production area currently blocked by manmade obstacles in tributaries. Option C is calculated as Option B minus Option A. Option C indicates blocked potential yield not associated with affects of the dams the Applicant owns on the mainstem Snake River.

II. Conclusion

1. "Option A estimates potential smolt yield if passage were to become available at all Idaho Power Company (IPC) mainstem Snake River dams." (Page 7, Paragraph 2)

"Option B estimates potential smolt yield if passage were to become available at all mainstem dams that IPC owns on the Snake River, as well as at all other manmade obstacles that would present a barrier to fish moving upstream or downstream." (Page 7, Paragraph 3)

"Option C estimates potential smolt yields from the portion of the historical production area currently blocked by manmade obstacles in tributaries. Option C is calculated as Option B minus Option A. Option C indicates blocked potential yield not associated with effects of the dams IPC owns on the mainstem Snake River." (Page 7, Paragraph 3)

Table 1. Summary of the smolt production associated with each option

Option Summary	Spring chinook	Steelhead	Fall chinook
A	699,673	316,997	4,274,161
B	2,574,153	1,137,223	4,274,161
C = (B-A)*	1,875,480	820,226	0

*Option C estimates blocked potential smolt production not associated with IPC dams.

"The greatest present-day production potential (smolt production) for spring chinook salmon and steelhead is distributed above manmade barriers in tributary basins above Brownlee Dam. The Bruneau River basin provides the second greatest production potential. Approximately 73% of the spring chinook potential above the HCC is upstream of tributary dams [not owned by IPC]. In the area between Brownlee and Swan Falls dams, approximately 94% of the production potential for spring chinook is behind tributary dams. This estimate includes blocked potential from the Powder, Burnt, Malheur, Owyhee, Payette, and Weiser rivers. Similarly, approximately 72% of the steelhead production potential above the HCC is upstream of tributary dams. Approximately 90% of the steelhead production potential is above tributary dams between Brownlee and Swan Falls dams. As discussed in Chapter 4 (Chandler and Chapman 2001b), most of the area was out of production before HCC was constructed." (Page 14, Paragraph 1)

Response:
The BLM agrees with this statement.

2. "With mainstem passage only, the greatest potential for spring chinook and steelhead production is the River. If passage were included at tributary dams, the Payette, Boise, and Bruneau river systems would have the greatest production potential." (Page 14, Paragraph 2)

Response:
The BLM agrees with this statement.

3. "Present-day fall chinook smolt production potential (smolt production) is concentrated in three reaches of the Snake River (Figure 2). The river sections above Brownlee Dam and above C.J. Strike Dam have comparable potential. As discussed in Chapter 5 (Chandler et al. 2001), the area above Swan Falls Dam was blocked before Brownlee Dam was built." (Page 14, Paragraph 3)

Response:
The BLM agrees with this statement.

III. Study Adequacy

The BLM should accept this study only after consulting with the NMFS to determine whether they have additional information.

IV. BLM Conclusions and Recommendations

Conclusions

The study shows that most of the potential spring/summer chinook and steelhead production is located in the tributaries above dams that the Applicant does not control (Table 1). Most of the habitat was out of production prior to closure of Hells Canyon Complex.

The study shows that the Applicant's dams block all historic fall chinook salmon habitats. The fall chinook smolt production estimates (Option A and B) appear extremely optimistic base on data presented in previous chapters. The Applicant reported that the habitat in the mainstem Snake River was in poor condition. Additionally, survival rates of the smolt leaving the system are likely to be extremely low due to the eleven to thirteen dams that they would have to pass before reaching the ocean.

The smolt numbers generated by the model are important because they will be used to justify reintroduction. It was noted in chapter 7 that much of the habitat in the tributaries was downgraded to poor or fair, which causes the model to produce lower smolt estimates.

The cost of passing spring/summer chinook salmon and steelhead into most of the tributaries would be extremely high due to the large number of dams and diversion structures that would need to be laddered and screened. Although the options show how many smolt could be produced, the actual feasibility of these reintroductions appears very unlikely based on information presented in this document.

Recommendations

Based on the information provided by the Applicant's study, the smolt production numbers appear reasonable for modeling purposes. The BLM should consult with other fisheries agencies to determine whether they agree with the Applicant's smolt modeling approach. The consultation should include an in-depth discussion of the habitat capability assumptions the Applicant used to generate the smolt production numbers. Furthermore, a discussion of the Applicant's approaches in options A, B, and C should be evaluated to determine whether other options less advantageous to IPC but better for fish production could be substituted.

The passage of fall chinook salmon over all of the IPC dams as modeled in option A should be supported by the BLM if NMFS and FWS feel it is feasible.