December 8, 2010

Memorandum

To: Dennis Lynch, Program Manager Klamath Basin Secretarial Determination, and Secretarial Determination Files

From: John Hamilton, Biological Subgroup co-Chair

Subject: Errata to 'Synthesis of the Effects to Fish Species of Two Management Scenarios for the Secretarial Determination on Removal of the Lower Four Dams on the Klamath River' FINAL DRAFT, November 23, 2010.

A. Section 2.1.13.1

Replaced Table 1 with the following:

Table 1. Estimates by various authors of the historical and current potential annual adult returns of anadromous fish in the Klamath River Basin. Methodologies differ by author therefore, please refer to reference for details.

Species Run Type	**Actual Post Project Counts and Surveys***			**Historical and Potential Production Estimates***			**Source: Notes**
	Min	**Mean**	**Max**	**Min**	**Mean**	**Max**	
Upper Basin, UKL and upstream							
Chinook (all runs)					15,052 (H)		Chapman (1981)(Chapman 1981): Based on relationship between rearing Weighted Usable Area (WUA) and Habitat Capacity. Author believes that estimate is conservatively low.
Chinook (all runs)						111,230 (H)	Huntington (2006): The 2004 estimates were revised based on new watershed areas that better represent potential habitat conditions in the upper basin.
Chinook (all runs)					6,480 (P)		Fortune (1966): Estimated that 3,240 Chinook salmon pairs could be supported in this reach.
Chinook (spring-run)				10,000 (H)			California Department of Fish and Game (1990): Based on a minimum number of 5,000 spring-run Chinook in the Williamson and Sprague Rivers.
Steelhead					8,447 (H)		Chapman (1981): Based on relationship between rearing Weighted Usable Area (WUA) and Habitat Capacity. Author believes that estimate is conservatively low.

Steelhead				6,852 (H)		20,044 (H)	Huntington (2004): Lower estimates are based on relationship between watershed area and population estimates for Shasta River and higher estimates are based on mean annual discharge and population estimates for the Shasta River.
Copco Dam to Upper Klamath Lake							
Chinook (fall-run)					21,508 (H)		Chapman (1981): Based on relationship between rearing Weighted Usable Area (WUA) and Habitat Capacity. Author believes that estimate is conservatively low.
Chinook (fall-run)					2,700 (P)		Fortune (1966): Estimated that 1,350 Chinook salmon pairs could be supported in this reach.
Chinook (fall-run)					10,000 (P)		Based on FERC (2007)[1]
Steelhead					10,694 (H)		Chapman (1981): Based on relationship between rearing Weighted Usable Area (WUA) and Habitat Capacity. Author believes that estimate is conservatively low.
Downstream of Copco Dam							
Chinook (fall-run)				175,000 (H)			Coots (1977): Based on estimates and counts of historical average annual spawning escapements.
Chinook (fall-run)		168,000					California Department of Fish and Game (1965): Based on spawning surveys 1962-63.
coho				20,000 (H)		70,000 (H)	Coots (1977): Based on estimates and counts of historical average annual spawning escapements.
coho		15,400					California Department of Fish and Game (California Department of Fish and Game 1965): Based on spawning surveys 1962-63.
Steelhead				300,000 (H)		750,000 (H)	Coots (1977): Based on estimates and counts of historical average annual spawning escapements.
Steelhead		221,000					California Department of Fish and Game (1965): Based on spawning surveys 1962-63.
Klamathon Racks (~RM 180) to Copco Dam							
Chinook (fall-run)	2,392	12,628	33,144				Wales (1951): Chinook salmon counts at Klamathon Racks from 1925 to 1950.
Iron Gate Dam to Copco Dam							

[1] FERC (2007) estimates did not take into consideration habitat under the dams.

Chinook (fall-run)	1,113	6,026	18,925				Based on FERC (1963); Fortune et al. 1966; and Coots (1977).
Chinook (fall-run)					1,200 (P)		Based on FERC (2007)[14]
Downstream of Iron Gate Dam							
Chinook (fall-run)				21,120 (P)		80,810 (P)	Hubbell, P. M. and L.B. Boydstun (Hubbell and Boydstun 1985): Based on currently available run size data, available habitat, and professional judgment.
Chinook (fall-run)	4,889	25,145	83,918				California Department of Fish and Game (2010): Estimate derived from Fall-Run Chinook Mega-Table for natural adult spawners 1978 through 2009. Excludes runs size estimates for Trinity River fall Chinook salmon.
Shasta River							
Chinook (fall-run)	2,037	27,537	81,844				Wales (Wales 1951): Chinook salmon run size estimates conducted in the Shasta River from 1925 to 1950.
Chinook (spring-run)				5,000 (H)			(California Department of Fish and Game 1990): Based on a minimum number of 5,000 spring-run Chinook in the Shasta and Scott Rivers.
Scott River							
Chinook (spring-run)				5,000 (H)			California Department of Fish and Game (1990): Based on a minimum number of 5,000 spring-run Chinook in the Shasta and Scott Rivers.
Salmon River							
Chinook (spring-run)	166	732	1,721				Based on snorkel survey counts conducted between 1980 and 2009. Population estimates were expanded based on number of fish observed per mile of available habitat.
Klamath & Trinity Rivers							
Chinook (fall-run)					500,000 (H)		Moyle (2002)
Chinook (fall-run)				205,000 (P)		410,000 (P)	Institute for Fisheries Resources (Institute for Fisheries Resources and Pacific Coast Federation of Fishermen's Associations 2006)

Chinook (spring-run)					100,000 (H)		Moyle (2002)
Chinook (spring-run)				160,000 (P)		320,000 (P)	Institute for Fisheries Resources (2006)
Coho Salmon					75,000 (P)		Institute for Fisheries Resources (2006)
Steelhead Trout					150,000 (P)		Institute for Fisheries Resources (2006)

* 'Actual Post Project Counts and Surveys' are those for after the Project construction in 1918; 'Historical and Potential Production Estimates' are estimates, using various methods, of a) the runs before the Project construction in 1918 (H); and b) the estimated potential runs in the future (P). KlamRas model results by Oosterhout (2005) were excluded because they are only suitable for ranking. EDT model estimates were excluded because of concerns about Ecosystem Diagnosis and Treatment (EDT) modeling applications to the Klamath (USDI Fish and Wildlife Service 2005) and pending further review by the Service.

Replaced Meyers et al. 1997 with Myers et al. 1997 in 'Currently, in contrast to fall-runs, spring-run abundance is at only 10 percent of historical levels (Myers et al. 1997). '

B. Sentence and additional citation added to Section 2.1.13.1 *Existing (Historical) Chinook Salmon Above Iron Gate Dam*, paragraph 4 (underlined):

NMFS also determined that fall-run populations in this ESU were at relatively high abundances, near historical levels, and trends were generally stable (Myers et al. 1997). However, the status of natural spawning fall run Chinook salmon is on a downward trajectory in the Klamath River (Quiñones In Progress). Basin wide escapement is staying close to consistent, even with natural spawning fall Chinook continuing to decline over time, due to an increasing proportion of hatchery fish (Quiñones In Progress); Figure 4. The majority of the returning Klamath Basin salmon are now hatchery reared fish (Institute for Fisheries Resources and Pacific Coast Federation of Fishermen's Associations 2006).

C. Replaced pers com with citation in Section 2.2.8.3. *Conditions without Dams with KBRA – Chinook Salmon Below Iron Gate Dam*, paragraph 2 (underlined):

Over the short term, oxygen demand per unit mass of wet sediment may also be relatively high (Stillwater Sciences 2010).

D. Section 2.2 12 - Buchanan et al. 1997 added to the lit cited.

E. The Personal Communication Section (Section 7) has been replaced with the following:

Todd Alsbury, ODFW, 2010
Chauncey Anderson. USGS, 2010
Craig Banner, ODFW, 2010
Jerri Bartholomew, OSU, 2009, 2010

Matthew Barry, Service, 2010
Sara Borok, CDFG, Arcata, CA, 2009
Clayton Creager, California NCRWQCB, 2010
Scott Foott, Service, 2009, 2010
Brian Gunderman, Michigan Department of Natural Resources –Fisheries Division, 2010
Allen Grover, CDFG, Santa Rosa, CA, 2006
Andy Hamilton, BLM, 2008
Mark Hampton, CDFG, 2009
Tom Hepler, Reclamation, 2010
Dennis Maria, former CDFG Biologist, 2005
Doug Markle, OSU, 2005
Dave Mauser, Service, 2010
Tim Mayer, Service, 2009, 2010
Shannon Peterson, Klamath Basin Rangeland Trust, 2005
Linda Prendergast, PacifiCorp, 2010
Rebecca Quiñones, USFS, 2009
Stewart Reid, Western Fishes, 2009
Dave Ross, Service, 2005, 2010
Tom Shaw, Service, 2009
Terry Smith, USFS, 2005
Burke Strobel, Portland Water Bureau, 2010
Paul Zedonis, Service, 2010

F. The following references have been corrected in the text and the Literature Cited Section:

- American Rivers 2002
- American Rivers et al. 1999
- Barnhart 1994
- Bartholow and Heasley 2005
- Bednarek 2001
- Bjork and Bartholomew 2009
- Burroughs et al. 2010
- Busby et al 1994
  California Farm Bureau Federation 2008
- California North Coast Regional Water Quality Control Board 2010
- Foott et al. 2003
- Gilbert 1898
- Gresh et al 2000
- Groves and Chandler 1999
- Howe (1968)
- Krakker 1991
- Lindenberg and Wood 2009
- Major et al. 2008
- Moyle 1976
- Moyle et al. 2008

- Moyle P.B. et al. 2008
- National Marine Fisheries Service 2010
- National Research Council 2004
- National Research Council 2008
- Oregon Department of Fish and Wildlife 2003
- Palmer 2008
- Parks 2009
- Stanley and Doyle 2003
- Stern 1966
- Stillwater Sciences 2008
- Stillwater Sciences 2009b
- Tinniswood 2006
- U.S. Department of the Interior 1985
- USDI Bureau of Land Management 2004
- USDI Fish and Wildlife Service 2007a
- USDI Fish and Wildlife Service 2007b