

Appendix A: Updated Population Categorization and IP-km

The number of kilometers of habitat with Intrinsic Potential to support rearing coho salmon (IP-km) identified for some populations in Williams et al. (2006) was updated.

Updated IP-km

- 5 The amount of IP-km was updated in eleven populations. The old and new IP-km amounts are described in Table A-1. The reason for change is noted in Table A-1 and explained in Section A.2.

Table A - 1- Population-specific changes to IP-km and classification

Diversity Stratum	Population unit	Williams et al. 2008 IP-km with temperature mask	Updated IP-km	Williams et al. 2008 classification	Current classification
Northern Coastal	Elk River	62.64	-	F. Independent	F. Independent
	Mill Creek	7.25	5.16	Dependent	Dependent
	Hubbard Creek	17.94	-	Ephemeral	Ephemeral
	Lower Rogue River	80.88	-	P. Independent	P. Independent
	Chetco River	135.19	-	F. Independent	F. Independent
	Winchuck River	56.5	-	P. Independent	P. Independent
	Brush Creek	5.68	-	Dependent	Dependent
	Mussel Creek	6.06	-	Dependent	Dependent
	Hunter Creek	14.63	-	Dependent	Dependent
	Euchre Creek	32.31	-	Ephemeral	Ephemeral
Pistol River	30.23	-	Dependent	Dependent	
Central Coastal	Smith River	385.71	324.84	F. Independent	F. Independent
	Lower Klamath River	204.69	-	F. Independent	F. Independent
	Redwood Creek	151.02	-	F. Independent	F. Independent
	McDonald Creek	5.44	2.77	Dependent	-
	Maple Creek/Big Lagoon	41.30	-	P. Independent	P. Independent
	Little River	34.20	-	P. Independent	P. Independent
	Mad River	152.87	136.47	F. Independent	F. Independent
Elk Creek	17.38	-	Dependent	Dependent	

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Diversity Stratum	Population unit	Williams et al. 2008 IP-km with temperature mask	Updated IP-km	Williams et al. 2008 classification	Current classification
Central Coastal	Wilson Creek	18.80	-	Dependent	Dependent
	Strawberry Creek	5.71	6.95	Dependent	Dependent
	Norton/Widow White Creek	8.54	9.86	Dependent	Dependent
Southern Coastal	Humboldt Bay tributaries	190.91	-	F. Independent	F. Independent
	Low. Eel/Van Duzen rivers	393.52	-	F. Independent	F. Independent
	Bear River	47.84	-	P. Independent	P. Independent
Southern Coastal (continued)	McNutt Gulch	5.90	< 2.0	Dependent	-
	Mattole River	249.79	-	F. Independent	F. Independent
	Guthrie Creek	14.16	13.82	Dependent	Dependent
Interior – Rogue River	Illinois River	589.69	-	F. Independent	F. Independent
	Mid. Rogue/Applegate R.	758.58	683.16	F. Independent	F. Independent
	Upper Rogue River	915.43	-	F. Independent	F. Independent
Interior – Klamath River	Middle Klamath River	113.49	-	P. Independent	P. Independent
	Upper Klamath River	424.71	-	F. Independent	F. Independent
	Salmon River	114.80	-	P. Independent	P. Independent
	Scott River	440.87	-	F. Independent	F. Independent
	Shasta River	531.01	-	F. Independent	F. Independent
Interior – Trinity River	South Fork Trinity River	241.83	-	F. Independent	F. Independent
	Lower Trinity River	112.01	-	P. Independent	P. Independent
	Upper Trinity River	64.33	365	F. Independent	F. Independent
Interior – Eel River	South Fork Eel River	481.11	-	F. Independent	F. Independent
	Mainstem Eel River	143.90	-	P. Independent	P. Independent
	North Fork Eel River	53.87	0.81	P. Independent	-
	Mid. Fork Eel River	77.70	-	P. Independent	P. Independent
	Mid. Mainstem Eel River	255.50	-	F. Independent	F. Independent
	Upper Mainstem Eel River	54.11	-	P. Independent	P. Independent

Rationale for population-specific IP-km amounts and classification changes

Mill Creek

5 A previously unaccounted for natural barrier at Garrison Lake excludes coho salmon from the watershed. Garrison Lake has a natural historic pattern of connection and disconnection to the ocean by a large sand bar. The watershed has been isolated from the ocean since sand dunes naturally migrated and filled the outlet stream in the mid-1900's (Maguire 2001). Anadromous fish do not currently occur in the Mill Creek watershed (Maguire 2001) and during periods of saltwater intrusion Garrison Lake likely has unsuitable conditions for juvenile rearing. Williams et al. (2006) determined that dependent populations must have at least 5 IP-km. After removing the IP-km in the lake and above it, the Mill Creek population has no IP-km and so does not meet the criterion for dependent populations.

Smith River

15 Lake Earl and its associated stream network were removed from the Smith River IP calculations because the IP model was not intended for open water habitat. Williams et al. (2006) determined that independent populations must have at least 34 IP-km. After removing the IP habitat that occurs in Lake Earl and its associated stream network, the total amount of IP-km for the Smith River population remains high enough for it to qualify as an independent population.

McDonald Creek

20 Stone Lagoon was removed from the McDonald Creek IP-km calculations because the IP model was not intended for open water habitat. Williams et al. (2006) determined that dependent populations must have at least 5 IP-km. When the lagoon was accounted for, the amount of IP-km in the McDonald Creek population was reduced and did not meet the criteria for a dependent population.

Mad River

25 IP-km which should have been attributed to Strawberry Creek and Norton/Widow White Creek was attributed to the Mad River. Williams et al. (2006) determined that independent populations must have at least 34 IP-km. When the IP-km for the Mad River was reduced, the total amount of IP-km for the Mad River population remains high enough for it to qualify as an independent population.

30 Strawberry Creek

IP-km which should have been attributed to Strawberry Creek was attributed to the Mad River. Williams et al. (2006) determined that independent populations must have at least 34 IP-km. When the IP-km for Strawberry Creek was increased, it did not meet this criterion and so remained a dependent population.

35 Norton/Widow White Creek

IP-km which should have been attributed to Norton/Widow White Creek was attributed to the Mad River. Williams et al. (2006) determined that independent populations must have at least

34 IP-km. When the IP-km for Norton/Widow White Creek was increased, it did not meet this criterion and so remained a dependent population.

Guthrie Creek

- 5 The amount of IP-km attributed to Guthrie Creek was too high. Williams et al. (2006) determined that dependent populations must have at least 5 IP-km. When the IP-km for Guthrie Creek was decreased, the total amount of IP-km remained high enough for it to qualify as a dependent population.

Middle Rogue/Applegate Rivers

- 10 A previously unaccounted for waterfall occurs 1.7 miles upstream from the Applegate River at Little Applegate Falls. The falls are believed to function as a complete migratory barrier (Maiyo 2011). Williams et al. (2006) determined that independent populations must have at least 34 IP-km. When the IP-km for the Middle Rogue/Applegate Rivers population was reduced, the total amount of IP-km remained high enough for it to qualify as an independent population.

Upper Trinity River

- 15 IP-km in the Upper Trinity River population was reduced for two reasons: to account for the gradient of the stream under reservoirs, and because the temperature mask was not appropriate.

- 20 The IP model used the surface elevations of the reservoirs as the gradient for those areas of the basin, which artificially inflates the low risk spawner threshold. The historic channel gradient of the Upper Trinity was estimated, and revised IP-km were calculated for the area under the reservoirs. Williams et al. (2006) determined that independent populations must have at least 34 IP-km. After reducing the IP-km as a result of this analysis, the total amount of IP-km for the Upper Trinity River remained high enough for it to qualify as an independent population.

- 25 Because the temperature mask is based on air temperature, it does not account for snowmelt and other sources of cold water within the basin, including releases from Lewiston Dam. Numerous streams which are documented to presently support rearing coho salmon rearing occur under the temperature mask. Williams et al. (2006) recognized the potential limitations of the temperature mask approach in the Upper Trinity. The temperature mask was removed from the Upper Trinity River population, which increased the amount of IP-km in the Upper Trinity River population.

North Fork Eel River

- 30 A previously unaccounted for natural barrier (Split Rock) excludes coho salmon from most of the watershed. Williams et al. (2006) determined that independent populations must have at least 34 IP-km and dependent populations must have at least 5 IP-km. After removing the IP habitat that occurred above the barrier, the total amount of IP-km for the North Fork Eel River does not meet the criteria for either an independent or a dependent population.

McNutt Gulch

5 A previously unaccounted for 15-foot waterfall with bedrock canyon walls occurs 1.98 km upstream from the mouth of McNutt Gulch. The waterfall is the natural limit to anadromy (CalFish 2009) and is assumed to be the upstream limit of historic coho occurrence in McNutt Gulch. When this natural barrier was accounted for, the amount of IP-km in the Middle McNutt Gulch population was reduced and did not meet the criterion for a dependent population.

Literature Cited

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- 15 Maiyo, S. 2011. Personal communication. Biologist. Rogue-Siskiyou National Forest.
- Williams, T. H., E. P. Bjorkstedt, W. G. Duffy, D. Hillemeier, G. Kautsky, T. E. Lisle, M. McCain, M. Rode, R. G. Szerlong, R. S. Schick, M. N. Goslin, A. Agrawal. 2006. Historical population structure of coho salmon in the Southern Oregon/Northern California Coasts evolutionarily significant unit. NOAA-TM-NMFS-SWFSC-390. NMFS, Southwest Fisheries Science Center, Santa Cruz, CA. 85 p.
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