

Table 8. Assessment Methods for the Coldwater Riverine Community

Assessment Variable	Assessment Criteria	Species/Life Stage	Assessment Method	Meets Constraint		
				1	2	3
Instream flow	Habitat area	White sturgeon/spawning, juvenile	Relationship between flow and spawning and rearing habitat area (California Department of Water Resources 1990, Kohlhorst et al. 1991, Parsley and Beckman 1994)	No	No	Maybe
	Habitat area	*Chinook salmon, steelhead trout/spawning	Relationship between flow and habitat area for spawning [IFIM studies (river specific)]	Yes	Maybe	Maybe
	Habitat area	*Chinook salmon/spawning	Relationship between spawning habitat and discharge rates and reservoir releases (USFWS 1985, Beak Consultants 1989)	Yes	Maybe	Yes
	Wetted area	*Chinook salmon, steelhead trout/incubation	Relationship between flow and change in wetted area [IFIM studies (river specific)]	Yes	Maybe	Maybe
	Habitat area	*Chinook salmon/incubation	Redd dewatering impacts using stage-discharge relationships for known spawning areas, and spawning depth criteria (Jones & Stokes Associates 1991, 1992)	Yes	Maybe	Yes
	Habitat area	Chinook salmon, steelhead trout/rearing	Relationship between flow and habitat area for rearing [IFIM studies (river specific)]	Yes	Maybe	No

Table 8. Continued

Assessment Variable	Assessment Criteria	Species/Life Stage	Assessment Method	Meets Constraint		
				1	2	3
Instream flow	Abundance index	Chinook salmon (Sacramento and Mokelumne River fall-run, Sacramento River winter-run, San Joaquin River fall-run)	Relationship between population abundance and historical or hypothetical flow, temperature and toxic metal concentration (CPOP, EACH [Kimmerer et al. 1989])	Yes	No	Maybe
	Abundance index	*White sturgeon	Relationship between white sturgeon juvenile abundance and outflow rates (Kohlhorst et al. 1991)	Yes	Maybe	Yes
	Transport rate	*Striped bass, *American shad	Rate of movement of particles (e.g., eggs and larvae) to downstream habitats (hydrodynamic model)	Maybe	Maybe	Yes
	Transport rate	*Chinook salmon	Rate of movement of particles (e.g., juvenile fish) to downstream habitats (hydrodynamic model)	Maybe	Maybe	No
Temperature	Survival	*White sturgeon/eggs and larvae	Relationship between temperature and survival rates (Kohlhorst 1976, Haynes et al. 1978)	Yes	Yes	Maybe
	Survival	*Chinook salmon, steelhead trout/spawning, incubation, rearing	Relationship between temperature and survival rates (Brett et al. 1982, Raleigh et al. 1986)	Yes	Maybe	Yes
Temperature	Habitat area	*Chinook salmon, steelhead trout/spawning, incubation, rearing	River length or area meeting specified water temperature criteria	Yes	Yes	Yes

Table 8. Continued

Assessment Variable	Assessment Criteria	Species/Life Stage	Assessment Method	Meets Constraint		
				1	2	3
	Abundance	Chinook salmon (Sacramento and Mokelumne River fall run, Sacramento River winter run, San Joaquin River fall run)	See "Instream Flow"			
	Coldwater release	*Chinook salmon, steelhead trout/spawning, incubation, rearing	Volume of water released from reservoir storage that meets specified water temperature criteria	Yes	Yes	Yes
Sediment movement	None proposed					
Diversion impacts	Proportion of flow diverted	All	The ratio of diversion volume to flow volume	Yes	Yes	No
	Proportion of screened diversions	*All screenable species/life stages	Ratio of number of screened diversion over total number of diversions	Yes	Yes	Yes
Barriers	Mortality	White sturgeon/adult, juvenile	None proposed			
	Mortality	*Chinook salmon, steelhead trout/adult	Relationship between dam passage and adult and egg mortality	Maybe	Maybe	Yes
	Mortality	*Chinook salmon, steelhead trout/juvenile	Relationship between dam passage and mortality	Maybe	Maybe	Yes

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Table 8. Continued

Assessment Variable	Assessment Criteria	Species/Life Stage	Assessment Method	Meets Constraint		
				1	2	3
Habitat	Habitat area	*All, including productivity	Area of habitat restoration meeting specific criteria (e.g., based on species needs) relative to area of existing habitat that meets the same criteria	Maybe	Yes	Maybe
	Habitat area	Terrestrial invertebrates	Area of habitat restoration meeting specific criteria (e.g., based on species needs) relative to area of existing habitat that meets the same criteria	Maybe	Maybe	Yes
Water quality	Toxic load	*All	Change in toxic load, pesticide use data, industrial and municipal discharge data	Yes	Maybe	Maybe
Fishing	None proposed					
Artificial production	None proposed					
Species interaction	None proposed					

Notes:

An asterisk (*) indicates that the assessment method, as applied to the species and lifestage identified, may be included among the tools used for the impact assessment in the Programmatic EIR/EIS.

Under "Meets Constraint", constraints 1, 2, and 3 are discussed in the text and briefly defined as:

1 - The assessment criteria must be measurable.

2 - The measurement error of the assessment criteria must be lower than the range of differences among alternatives.

3 - The assessment criteria must make it possible to identify important differences and similarities between alternatives.

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