

**Waipi'o: Matrix on Conditions Related to Stream Diversion**

Factor	Natural Conditions	Diverted	Restoration
Stream Flow	Variable but natural, but stream never dries up completely. Minimum low flows adequate to maintain stream life.	Dry streambed immediately below the diversion, many sections of upper stream dry up completely during the summer or drought periods. Dry areas of stream unable to support life.	Flow becomes natural again and stream never dries up, but is highly variable. Minimum low flows are now higher than when diverted
Water Quality:			
Dissolved Oxygen	High levels of dissolved oxygen (good)	Lower levels of dissolved oxygen	High levels of dissolved oxygen
pH	Stable pH	More variable pH	Stable pH
Temp	Low water temperatures	Higher water temperatures	Low water temperatures
Conductivity	Low conductivity	??High conductivity	Low conductivity
Aquatic Habitats	Wide variety of riffles, pools, and runs. Quantity of habitat available for native species is good	Lesser amount of habitat. Some areas of stream become nearly dry, and have little aquatic habitat below the diversion	Stream habitat immediately returns to normal, full complement of natural stream habitats.
Biota			
Algae	Stable community, high diversity, high densities	Low diversity and low density	Stable community, high diversity, high densities
Insects	Higher densities, greater numbers of species	Low densities, some species absent	Increasing number of species, greater densities of each species
Crustaceans	High densities	Few individuals in diverted stretch	Increasing number of species
Fish	Variable numbers, all native species present, recruitment of young fish to stream occurs	Introduced species dominate, no fish at all in dry areas, lower amounts of recruitment	Introduced species less dominant, recruitment of native fish increasing,
Fish Parasites	Moderate level of fish parasites in both native and introduced species	Increased numbers of fish parasites in diverted areas	Lower levels of fish parasitism in restored stream
Abiotic Factors			
Rainfall	These variables are independent of stream restoration. For example, rainfall will occur no matter how much stream flow is diverted.		
Air Temp			
Sediment Input			
Solar Radiation			

