

Table III.C.1

Number	KEC	Definition
1.1.1.2	down wood	in riparian areas direct use during overbank floods; recruitment from riparian to channel over time; role of wood in shaping channel structure
2.1.2.1	predation	introduced fishes prey on juvenile salmon in freshwater (e.g., walleye, smallmouth bass)
2.1.2.2	direct displacement	competitive exclusion from foraging or reproductive habitat (e.g., smallmouth bass in tributaries)
2.1.2.4	other	disease originating from introduced fishes
2.2.1	mountain pine beetle	positive relation--down wood recruitment
2.2.2	spruce budworm recruitment	positive relation--direct food source and down wood
2.2.3	gypsy moth recruitment	positive relation--direct food source and down wood
2.3	beaver/muskrat activity	positive provides habitat structure short & long term
2.4	burrows	positive provides habitat structure short & long term
4.1.1	dissolved oxygen	positive relation--strict requirements
4.1.2	water depth	positive association with deeper waters
4.1.3	dissolved solids	association with high-to-intermediate values
4.1.4	water pH	association with intermediate values
4.1.5	water temperature	negative--requirement & association with coldest available waters
4.1.6	water velocity	association with intermediate values
4.1.7	water turbidity	negative--growth and survival decline as function of concentration and duration
4.1.8	free water (derived from any source)	positive
4.1.9	salinity and alkalinity	association with high-to-intermediate values
4.2.1	oxbows	positive--preferred habitat for rearing stages
4.2.2.1	intermittent	occasional use but overall negative association
4.2.2.2	upper perennial	positive--frequent use
4.2.2.3	lower perennial	positive--heaviest use
4.2.3.1	open water zone	positive seasonal heavy use
4.2.3.2	submerged/benthic	positive seasonal heavy use
4.2.3.3	splash zone/periodically flooded	positive seasonal heavy use (during peak flows)
4.2.4.1	rocks	positive association
4.2.4.2	cobble/gravel	strong positive association all life stages
4.2.4.3	sand/mud	generally negative association most life stages
4.2.5.1	submergent vegetation	occasional positive association
4.2.5.2	emergent vegetation	occasional positive association
4.2.6	coarse woody debris in streams and rivers	positive association (cover, food supply, habitat-shaping element)
4.2.7	pools	positive association (cover, etc)
4.2.8	riffles	generally negative association
4.2.9	runs/glides	positive association
4.2.10	overhanging vegetation	positive: cover, food source, indicator for complex, stable channels
4.2.11	waterfalls	negative -- movement barriers
4.2.13	seeps or springs	strong positive association in most life stages
4.6	lakes/ponds/reservoirs weak	positive association
4.6.1.1	open water zone	use by some life stages
4.6.1.2	submerged/benthic	use by some life stages
4.6.1.3	splash zone/periodically flooded	use by some life stages

4.6.2.1	rocks	use by some life stages
4.6.2.2	cobble/gravel	use by some life stages
4.6.4.1	ponds (<2 ha)	use by juvenile rearing life stages
4.6.4.1	lakes (>2 ha)	use by juvenile rearing life stages
4.7.1	riverine wetlands	use by juvenile rearing life stages
4.7.2.1	forest	use by juvenile rearing life stages
4.7.2.2	non-forest	use by juvenile rearing life stages
4.9	seasonal flooding	use by juvenile rearing life stages
5.1.3	nearshore subtidal	use by all marine life stages
5.1.4	pelagic	use by all marine life stages
5.3.1	protected	use by all marine life stages
5.3.2	semi-protected	use by all marine life stages
5.3.3	partially exposed	use by all marine life stages
5.4.2	kelp	use by all marine life stages
5.5.1.1	fronts (e.g. tide rips and confluence zones)	use by all marine life stages
5.5.2	euphotic zone	use by all marine life stages (visual foragers)
5.6	water temperature	negative (prosper in coldest conditions)
5.8.4	delta	positive association (food supply, physiological transition zone)
5.8.6	lagoon	positive association (food supply, physiological transition zone)
5.8.7	salt marsh	positive association (food supply, physiological transition zone)
5.8.8	reef	positive association (food supply, physiological transition zone)
5.8.9	tidal flat	positive association (food supply, physiological transition zone)
8.5	diseases transmitted by domestic animals	negative effect of hatchery-origin fish and aquaculture facilities
8.12.1	herbicides/fungicides	negative effect-high sensitivity to low exposures (lethal and sublethal effects documented)
8.12.2	insecticides	negative effect-high sensitivity to low exposures (lethal and sublethal effects documented)
8.12.3	pesticides	negative effect-high sensitivity to low exposures (lethal and sublethal effects documented)
8.12.4	fertilizer	negative effect through toxicity or through eutrophication
8.16	culverts	negative -- partial or complete migration barriers
8.17	irrigation ditches	negative -- movement barriers, mortality sinks
8.19.3	water pollution	negative -- manifold effects on survival/growth/behavior
8.22	bulkheads, seawalls, revetment	generally negative, simplifies habitat structure
8.23	jetties, groins, breakwaters	generally negative, simplifies habitat structure
8.24	water diversion structures	negative, movement barrier population sinks
8.28	hatchery fish releases	generally negative, adverse effects on growth, survival, behavior, and genetic basis for local adaptation, and often stimulates predation pressure

* Number codes refer to the classification system for KEFs or key ecological functions, as shown in Table 1 - Section 3.3

** Source: C. Frissell, pers. Comm.

Table III.C.1