

Appendix A:
Revised 2003 FPEIR Impact Tables for
Water Quality, Biological Resources,
and Human Health and Safety

Table A-1:

Revised Table 3.3-1: Summary of potential effects on biological resources under Alternative 1 due to use of glyphosate and imazapyr herbicides

Impact	Glyphosate	Imazapyr
BIO-1.1: Effects of treatment on tidal marsh plant communities affected by salt-meadow cordgrass and English cordgrass	Significant but mitigable adverse impact due to spray drift effect on non-target emergent marsh vegetation.	Potentially slightly increased adverse impact due to higher toxicity to non-target vegetation. Less than significant with Mitigation BIO 1.1
BIO-1.2: Effects on tidal marsh plant communities affected by Atlantic smooth cordgrass and its hybrids	Local, moderately persistent adverse impacts of herbicide spray drift on tidal marsh vegetation adjacent to treated areas could occur from manual and normal helicopter application. Minimal non-target impacts to vegetation could occur from wick/ brush applications. Significant but mitigable adverse impacts could occur from worst-case helicopter spray drift.	Potentially slightly increased adverse impact due to higher toxicity to non-target vegetation. Less than significant with Mitigation BIO 1.2
BIO-1.3: Effects on tidal marsh plant communities affected by Chilean cordgrass	Minor to moderate short-term adverse impact due to spray drift from manual applications. Helicopter spray probably infeasible for known infestations of this species.	Potentially slightly increased adverse impact due to higher toxicity to non-target vegetation. Less than significant with Mitigation BIO 1.1
BIO-1.4: Effects on submerged aquatic plant communities	No adverse impact.	Potentially slightly increased, but still less than significant, adverse impact due to somewhat higher toxicity to algae.
BIO-2: Effects on special-status plants in tidal marshes	Potentially significant adverse impacts to soft birds beak, only with removal of known salt-meadow and Chilean cordgrass infestations (less than significant with mitigation).	Potentially slightly increased adverse impact due to higher toxicity to non-target vegetation. Less than significant with mitigation BIO-2.
BIO-3: Effects on shorebirds and waterfowl	Short-term, local disturbance of shorebirds and waterfowl in vicinity of access and treatment areas (slough and mudflat). Moderate adverse impact. Potentially significant impacts if helicopters are used for repeat treatment of large mudflat colonies.	Same. Less than significant with mitigation BIO-3.
BIO-4.1: Effects on the salt marsh harvest mouse and tidal marsh shrew species	Eradication of non-native cordgrass in high marsh may have significant short-term adverse impacts in few locations, but usually minor or none. Local, short-term minor to moderate adverse impacts due to incidental trampling or disturbance.	Same. Less than significant with mitigation BIO-4.1.

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Impact	Glyphosate	Imazapyr
BIO-4.2: Effects on resident harbor seal colonies of San Francisco Bay	Short-term, local disturbance of harbor seals in vicinity of a few access and treatment areas. Potentially significant adverse impacts at a few potential project sites, minor or no impacts at most project sites.	Same. Less than significant with mitigation BIO-4.2.
BIO-4.3: Effects on the southern sea otter	Negligible or no impact.	Same.
BIO-5.1: Effects on California clapper rail	Potentially significant disturbance of clapper rail foraging, mating, nesting, due to treatment activity, resulting habitat destruction, and crew access to rail habitats. Local loss of breeding; risk of mortality.	Same.
BIO-5.2: Effects on the California black rail	Potentially significant impact foreseeable only at one site; no impacts in San Francisco Bay.	Same.
BIO-5.3: Effects on tidal marsh song sparrow subspecies and the salt marsh common yellowthroat	Potentially significant disturbance of foraging, mating, nesting, due to treatment activity, resulting habitat destruction, and crew access to habitats. Local loss of breeding; risk of mortality.	Same.
BIO-5.4: Effects on California least terns and western snowy plovers.	Potentially significant local adverse impacts to levee nest sites due to vehicle access.	Same.
BIO-5.5: Effects on raptors (birds of prey)	Potential moderate adverse impacts if helicopters are used, otherwise minor short-term impacts.	Potentially slightly reduced adverse impacts if helicopters are used due to lower spray volumes and associated lower number of required flights to refill helicopter tanks.
BIO-6.1: Effects on anadromous salmonids (winter-run and spring-run Chinook salmon, steelhead)	Minor to moderate impact due to potential exposure of fish to tidally remobilized herbicide spray solution containing surfactants.	Slightly reduced impact due to lower toxicity of imazapyr and surfactants.
BIO-6.2: Effects on delta smelt and Sacramento splittail	Long-term stabilization and restoration of natural tidal creek structure and high density of small tidal creeks due to arrested spread of smooth cordgrass, protection of favorable habitat.	Same.
BIO-6.3: Effects on the tidewater goby	No impact.	Same.

Table A-1:

Revised Table 3.3-1: Summary of potential effects on biological resources under Alternative 1 due to use of glyphosate and imazapyr herbicides

Impact	Glyphosate	Imazapyr
BIO-6.4: Effects on estuarine fish populations of shallow submerged intertidal mudflats and channels	Minor to moderate impact due to potential exposure of fish to tidally remobilized herbicide spray solution containing surfactants.	Slightly reduced impact due to lower toxicity of imazapyr and surfactants.
BIO-7: Effects on California redlegged frog and San Francisco garter snake	No impacts.	Same.
BIO-8: Effects of regional invasive cordgrass eradication on mosquito production	Minor to moderate production of additional mosquito breeding habitat in topographic depressions in marsh plain left by vehicles, excavation pits.	Same.
BIO-9: Effects on tiger beetle species	No impact.	Same.

**Table A-2:
Revised Table 3.6-1: Summary of potential human health and safety effects under Alternative 1
due to use of glyphosate and imazapyr herbicides**

Impact	Glyphosate	Imazapyr
HS-1: Worker injury from accidents associated with manual and mechanical cordgrass treatment.	Minor worker injuries are possible during manual spraying activities.	Same.
HS-2: Worker health effects from herbicide application.	Significant but mitigable worker health effects are possible from worker inhalation and contact with herbicides during treatment activities.	Same.
HS-3: Health effects to the public from herbicide application.	Significant but mitigable public health effects are possible from worker inhalation and contact with herbicides during treatment activities.	Same.
HS-4: Health effects to workers or the public from accidents associated with treatment.	Significant but mitigable public health effects are possible from accidental spills of herbicides during treatment activities.	Same.

**Table A-3:
Revised Table 3.2-6: Summary of effects on water quality under Alternative 1
due to use of glyphosate and imazapyr herbicides**

Impact	Glyphosate	Imazapyr
WQ-1: Degradation of water quality due to herbicide application	Minor impact.	Same.
WQ-2: Degradation of water quality due to herbicide spills	Potentially significant and mitigable impact.	Same.
WQ-3: Degradation of water quality due to fuel or petroleum spills	Small potential for spill.	Same.
WQ-4: Degradation of water quality due to contaminant remobilization	No adverse impacts.	Same.
WQ-5: Water quality effects resulting from sediment accretion	No effect.	Same.