

Criteria Flow Chart for Non-Aeration Implementation Alternatives

That Might Improve Dissolved Oxygen Conditions in the DWSC

DRAFT - March 15, 2004 Mark Roberson and Kevin Wolf

Criteria Flow Chart



- issues would block implementation.

SCREENING CR	ITERIA FOR	NON-AER	ATION F	EASIBI	LITY ST	JDIES					
Mark Roberson and Kevin W	Volf										
12-Mar-04											
For rating information	on, see Diagram	sheet.									
	Knowledge of	Streng	gth of								
Alternative	Connection to	improveme	ent to D.O.	Quar	ntification	of Improve	ement	Sec	ondary Effe	ects	Verifiable
	DO in DWSC	ben	efit								
LOADS	List hypotheses separately	existing knowledge	theory	existing studies	existing modeling	potential studies	potential modeling	Positive	Negative	Note	Local or Regional
SAMPLE Sediment - Phosporus	3	1	3	2	2	5	5	4	2	See separate writeup	Local and regional studies could be verifiable (4), HydroQual modeling could measure impact in DWSC (4)

												Ī
Geo	graphic Scope	Ten	emporal Scope Legal Considerat		nsiderations	Cost to Benefit Analysis		Stakeholder Support		Synthesis	Rec	
score	note	score	note	score	note	Cost per unit of DO reduction	Potential to Spread Cost	score	note			
3		2		5		Not available	5	4	There are other reasons why stakeholders support lowering phosphorus attached to sediment.	Strong agreement that there is a connection of P on sediments helping grow algae that impacts DO. No cost benefit information however potential benefits, postive secondary impacts and potential to spread costs are relatively high.	Pursue so for actio and ev impact a Include nutr	

Alternative Category and Topic	
compiled by Kovin Welf and Mark Beharson	
March 17, 2004 version	
March 17, 2004 Version	
LOADS	
ALGAL LOAD REDUCTION by LOCATION	
City of Stockton sewage ponds	
DWSC itself	
Eastside tributaries Stanislaus, Tuolumne and Merced Rivers	
French Camp Slough, Calaveras River	
Mud and Salt Sloughs including Grasslands	
Sewage Treatment plants connected to the mainstem SJR	
(e.g. Lathrop, Manteca, Turlock, and Modesto	
tributarias Easteida Bupass, mainstam)	
SIR itself downstream of Lander Ave	
South delta from the Tracy Pumps north to the DWSC	
including City of Tracy	
Stockton sloughs and the Turning Basin	
West side north of Mud and Salt Slough to South Delta	
ALGAL LOAD REDUCTION by PRECURSOR or OTHER	
Airborne - nutrients	
Feedlot - nutrients	
Groundwater - nutrients	
Sediment phosphate	
Sewage treatment facility nutrients	
Wildlife refuges and wetlands drainage	
AMMONIA and NBOD REDUCTION by LOCATION	
DWSC algae	
French Camp Slough	
Harding Drain	
Manteca WTP	
Modesto WTP	
NON-AMMONIA NON-ALGAL LOAD REDUCTION	
Ag irrigation drainage - CBOD	
Ag stormwater runoff - CBOD	
Riparian vegetation - CBOD	
SOD (suspended) in DWSC	
SOD (bedded) in DWSC	
Urban dry season runoff - CBOD	
Urban stormwater runoff - CBOD	
Urban wastewater drainage - CBOD	
Wildlife refuges and wetlands drainage	
SECONDARY FACTORS THAT INFLUENCE ALGAI	
PRODUCTION	
Herbivore grazing (e.g. clams, zooplankton)	
Light reduction by sediment in DWSC - reduced O2 production	
Light reduction by sediment in SJR upstream of DWSC -	
reduced algal growth	
Light reduction in the San Luis Drain	
Ag drainage nows	

Sediment reduction and improved water temp	
Shading and riparian forest	
FLOWS	
FLOWS/RESIDENCE TIME IMPROVEMENTS	
Delta Tidal (Ag) Barriers and low head pumping	
Eastside tributary flows (Stanislaus, Tuolumne and Merced)	
Efficiency to load and flow improvements in subwatersheds	
Export pumping rates and timing	
Head of Old River Barrier operations	
Sacramento River flows at the Delta Cross Channel	
SJR - drainages and diversions below Old River-(e.g. French	
Camp Slough, Calaveras River)	
SJR - drainages and diversions above Old River to Lander	
Ave.	
SJR - Friant Dam releases	
SJR - Groundwater inflow	
SJR - Recirculation (e.g Newman Wasteway, Mendota Pool)	
SJR - Sewage treatment effluent flows	
DWSC GEOMETRY	
REDUCTION OF VOLUME OPTIONS	
Burns Cut extends to Turner Cut and isolates entire low DO	
section of DWSC	
Burns Cut only isolates upper DWSC	
DWSC fills in over time	