

Site Name:	Investigator:	Date:
------------	---------------	-------

**Field S data form. ORWAP version 2.0.2**

**S1 Wetter Water Regime - Internal Causes**

In the last column, place an X next to any item that is likely to have caused a part of the AA to be **inundated** more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. (The items you check are not used automatically by ORWAP. They are included simply so they may be considered when evaluating the factors in the table beneath them).

- an impounding dam, dike, levee, weir, berm, road fill, or tidegate -- within or downgradient from the AA, or raising of outlet culvert elevation.
- excavation within the AA, e.g., artificial pond, dead-end ditch
- excavation or reflooding of upland soils that adjoined the AA, thus expanding the area of the AA
- plugging of ditches or drain tile that otherwise would drain the AA (as part of intentional restoration, or due to lack of maintenance, sedimentation, etc.)
- vegetation removal (e.g., logging) within the AA
- compaction (e.g., ruts) and/or subsidence of the AA's substrate as a result of machinery, livestock, or off road vehicles
- changes not related directly to humans, e.g., beaver

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the **combined** maximum effect of those items in creating a wetter water regime that still persists in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present. The sum and final score will compute automatically.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	Pts
Spatial extent of resulting wetter condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	0
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score these 2 rows only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0

**S2 Wetter Water Regime - External Causes**

In the last column, place an X next to any item **occurring in the CA** (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. **Remember that if the AA is flooded as little as once every 2 years by river flow, the CA includes all upstream areas of that river.**

- subsidies from stormwater, wastewater effluent, septic system leakage, or irrigation water (direct or via seepage)
- pavement, ditches, or drain tile in the CA that incidentally increase the transport of water into the AA
- removal of timber or phreatophytes in the CA or along the AA's tributaries
- removal of a water control structure or blockage in tributary upstream from the AA
- changes in the CA that are not related directly to humans, e.g., channel migration, landslides, forest die-offs, seismic activity

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	Pts
Spatial extent of resulting wetter condition	>20% of the AA	5-20% of the AA	<5% of the AA	0
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score this row only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0

S3	<b>Drier Water Regime - Internal Causes</b>					
	In the last column, place an X next to any item located <b>within</b> or <b>immediately adjacent</b> to the AA, that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without that item.					
	ditches or drain tile in the AA or along its edge that accelerate outflow from the AA					
	lowering or enlargement of a surface water exit point (e.g., culvert) or modification of a water level control structure, resulting in quicker drainage					
	accelerated downcutting or channelization of an adjacent or internal channel (cut below the historical water table level)					
	deep ripping (e.g., with plows) that severs an underlying hydrologically-confining soil layer					
	placement of fill material					
	withdrawals (e.g., pumping) of natural surface or ground water directly out of the AA (not its tributaries)					
	If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
			Severe (3 pts)	Medium (2 pt)	Mild (1 pt)	
	Spatial extent of AA's resulting drier condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	0	
	When most of AA's drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0	
	<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>					
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0		
Water level decrease	>1 ft	6-12"	<6 inches	0		
				sum=	0	
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	0	
S4	<b>Drier Water Regime - External Causes</b>					
	In the last column, place an X next to any item <b>within the CA</b> (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without those.					
	a dam, dike, levee, weir, berm, or tidegate that interferes with natural inflow to the AA					
	relocation of natural tributaries whose water would otherwise reach the AA					
	instream water withdrawals from tributaries whose water would otherwise reach the AA					
	groundwater withdrawals that divert water that would otherwise reach the AA					
	proliferation of phreatophytes (woody plants with deep roots and high transpiration, e.g., juniper, autumn olive) or crops with high transpiration rates that are near the AA					
	changes not related directly to humans					
	If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
			Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
	Spatial extent of AA's resulting drier condition	>20% of the AA	5-20% of the AA	<5% of the AA	0	
	When most of AA's drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0	
	<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>					
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0		
Water level decrease	>1 ft	1-12"	<1 inch	0		
				sum=	0	
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	0	

S5	<b>Altered Timing of Water Inputs</b>				
	In the last column, place an X next to any item that is likely to have caused the <b>timing</b> of water inputs (but not necessarily their volume) to shift by hours, days, or weeks, becoming either <b>more muted</b> (smaller or less frequent peaks spread over longer times, more temporal homogeneity of flow or water levels) or <b>more flashy</b> (larger or more frequent spikes but over shorter times).				
	flow regulation in tributaries or water level regulation in adjoining water body, or tidegate or other control structure at water entry points that regulates inflow to the AA				
	increased pavement and other impervious surface in the CA				
	straightening, ditching, dredging, and/or lining of tributary channels in the CA				
	discharges of irrigation water to the AA, applied at times when natural runoff typically is not significant				
	other				
	If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the timing of water inputs to the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
	Spatial extent within the AA of timing shift	>95% of AA	5-95% of AA	<5% of AA	0
	When most of the timing shift began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
	<i>Score the following 2 rows only if the altered inputs began within past 10 years, and only for the part of the AA that experiences those.</i>				
	Input timing now vs. previously	shift of weeks	shift of days	shift of hours or minutes	0
	Flashiness or muting	became very flashy or controlled	intermediate	became mildly flashy or controlled	0
				sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0	
S6	<b>Accelerated Inputs of Nutrients, Contaminants, and/or Salts</b>				
	In the last column, place an X next to any item -- occurring in either the AA or its CA -- that is likely to have accelerated the inputs of nutrients, contaminants, or salts to the AA				
	stormwater or wastewater effluent (including failing septic systems), landfills				
	irrigation water discharges into the AA, including saline seeps				
	livestock, dogs				
	fertilizers applied to lawns, ag lands, or other areas in the CA				
	pesticides applied to lawns, ag lands, roadsides, or other areas in the CA, but excluding spot applications for controlling non-natives in the AA				
	dumping of large amounts of wood, leaves, grass clippings, trash into the AA or its tributaries				
	artificial drainage of upslope lands				
	reflooding of soils that had been dry for many years				
	fire retardants from aerial firefighting				
	oil or chemical spills (not just chronic inputs) from nearby roads				
	erosion of nutrient-rich or contaminated soils				
	chemical wastes from mining, oil/ gas extraction, other industrial sources				
	other human-related disturbances within the CA				
sources not related directly to humans, e.g., fire, extensive cover of nitrogen-fixing plants (e.g., alder), concentrations of waterbirds or other wildlife					
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in generating loads of nutrients, contaminants, or salts reaching the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)		
Usual toxicity of most toxic contaminants	industrial effluent or 303d* for toxics	domestic effluent, cropland, or 303d for nutrients	mildly impacting (livestock, pets, low density residential)	0	
Frequency & duration of input	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	0	
AA proximity to main sources (actual or potential)	0-50 ft	50-300 ft or in groundwater	in other part of contributing area	0	
* categorized by ODEQ as Water Quality Limited (303d) and toxic substances are listed by ODEQ as one reason. See item D40 in data form OF.			sum=	0	
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.			final score=	0	

S7	<b>Excessive Sediment Loading from Contributing Area</b>					
	In the last column, place an X next to any item present in the CA that is likely to have elevated the load of waterborne or windborne sediment reaching the AA from its CA.					
	erosion from plowed fields, fill, timber harvest, dirt roads, vegetation clearing, fires					
	erosion from construction, in-channel machinery in the CA					
	erosion from off-road vehicles in the CA					
	erosion from livestock or foot traffic in the CA					
	stormwater or wastewater effluent					
	sediment from gravel mining, other mining, oil/ gas extraction					
	accelerated channel downcutting or headcutting of tributaries due to altered land use					
	other human-related disturbances within the CA					
	natural processes within the CA, e.g., streambank erosion, landslides, erosion of erosion-prone soils especially following fire, floods					
	If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in increasing the amount or transport of sediment into the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
			Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
	Erosion in CA		extensive evidence, high intensity*	potentially (based on high-intensity* land use) or scattered evidence	potentially (based on low-intensity* land use) with little or no direct evidence	0
	Recentness of significant soil disturbance in the CA		current & ongoing	1-12 months ago	>1 yr ago	0
Duration of sediment inputs to the AA		frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	0	
AA proximity to actual or potential sources		0-50 ft, or farther but on steep erodible slopes	50-300 ft	in other part of contributing area	0	
* high-intensity= plowing, grading, excavation, erosion with or without veg removal; low-intensity= veg removal only with little or no apparent erosion or disturbance of soil or sediment				sum=	0	
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	0	
S8	<b>Soil or Sediment Alteration Within the Assessment Area</b>					
	In the last column, place an X next to any item present in the AA that is likely to have compacted, eroded, or otherwise altered the AA's soil					
	compaction from machinery, off-road vehicles, or mountain bikes, especially during wetter periods					
	leveling or other grading not to the natural contour					
	tillage, plowing (but excluding disking for enhancement of native plants)					
	fill or riprap, excluding small amounts of upland soils containing organic amendments (compost, etc.) or small amounts of topsoil imported from another wetland					
	livestock and other sediment- or soil-disturbing animals, e.g., carp, nutria, wild boar, people on foot					
	excavation					
	dredging in or adjacent to the AA					
	boat traffic in or adjacent to the AA and sufficient to cause shore erosion or stir bottom sediments					
	artificial water level or flow manipulations sufficient to cause erosion or stir bottom sediments					
	natural processes within the AA, e.g., trampling by concentrated wildlife, shore or streambank erosion, landslides, normal erosion of erosion-prone soils especially following fire, floods.					
	If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in altering the AA's soils. To estimate that, contrast it with the soil condition if checked items never occurred or were no longer present.					
			Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
	Spatial extent of altered soil		>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	0
Recentness of significant soil alteration in AA		current & ongoing	1-12 months ago	>1 yr ago	0	
Duration		long-lasting, minimal veg recovery	long-lasting but mostly revegetated	short-term, revegetated, not intense	0	
Timing of soil alteration		frequent and year-round	frequent but mostly seasonal	infrequent & mainly during scattered events	0	
				sum=	0	
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	0	

S9	<b>Vegetated Cover Removal Within the Assessment Area</b>				
In the last column, place an X next to any item present in the AA that is likely to have caused less canopy or ground cover, or less vegetation biomass, or less wood generally. If only the species composition (not total cover or biomass) changed, do not check any of these items.					
clearing, logging, excepting removal of woody vegetation from native prairies					
grazing by livestock					
mowing					
herbicides, excepting spot applications for controlling non-native plants in the AA					
plowing, regrading					
removal of woody debris					
shading from large artificial structure, e.g., bridge, boardwalk, dock					
other human-related disturbances within the AA					
natural processes concentrated within the AA, e.g., wind & wave scouring, windthrow, insect or disease infestations, fires, beaver damage, natural erosion, intensive grazing by deer, elk, geese.					
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the amount of vegetation cover in the AA.					
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of veg removal	>95% of AA or >95% of its water edge	5-95% of AA or 5-95% of its water edge	<5% of AA and <5% of its water edge if any		0
Frequency of significant veg removal	regularly during most of the year	a few times a year	annual or less		0
Biomass recovery after each removal	> 20 yrs	2-20 yrs	<2 yrs		0
				sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.				final score=	0