

# Outline of Possible Oso Watershed TMDLs And Implementation Plan

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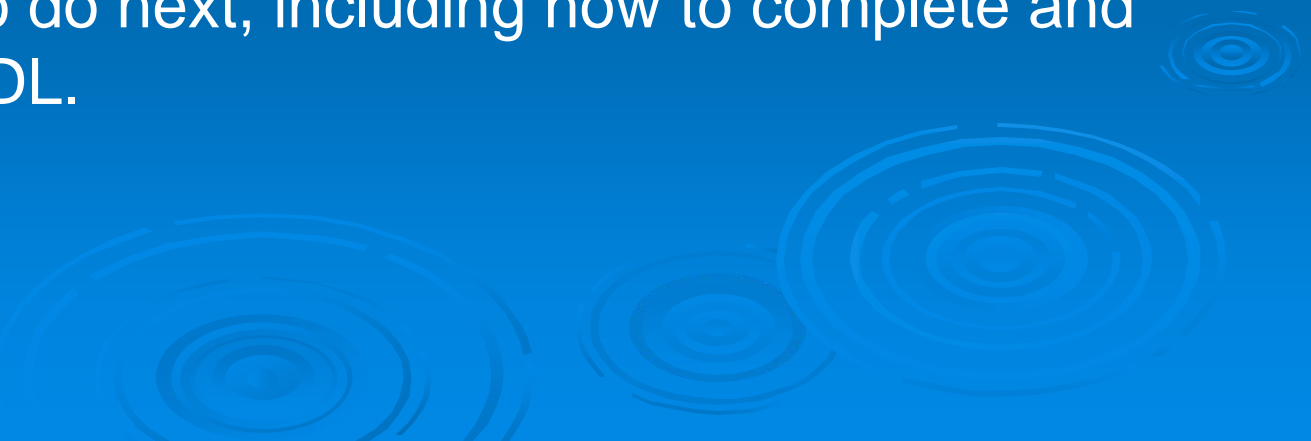
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Important points to remember about this presentation:

The **allowable loading analysis and the TMDL calculations shown here are preliminary examples** of how it could be done. Numbers shown here are not established “final” values, and are not necessarily the values that will appear when a draft TMDL is prepared and reviewed.

This meeting is to inform you about what we have now, what could be done with that, and to seek your input regarding what to do next, including how to complete and structure the TMDL.



For stakeholder consideration as we go through these slides:

- **Relatively small “dry day” load reductions nearly achieve the geometric mean goal in model simulations.**
- **Model “allowable load” scenario using 25% exceedence goal indicates that large reductions in runoff loading are needed for the creek watershed, but not in the bay watershed.**
- **The 25% exceedence goal used for modeling, 104 cfu/100mL, is not yet the adopted Water Quality Standard. Current value, 89 cfu/100mL, was not quite achieved by model “allowable load” scenario at one subbasin.**

For stakeholder consideration as we go through these slides:

- **“Allowable Load” scenario modeled so far predicted most stream points to be well below (i.e. compliant with) the water quality criteria, implying a large margin of safety in current analysis.**

- **Are subbasin fractions used to distribute city stormwater as “point source loading” reasonable and acceptable?**

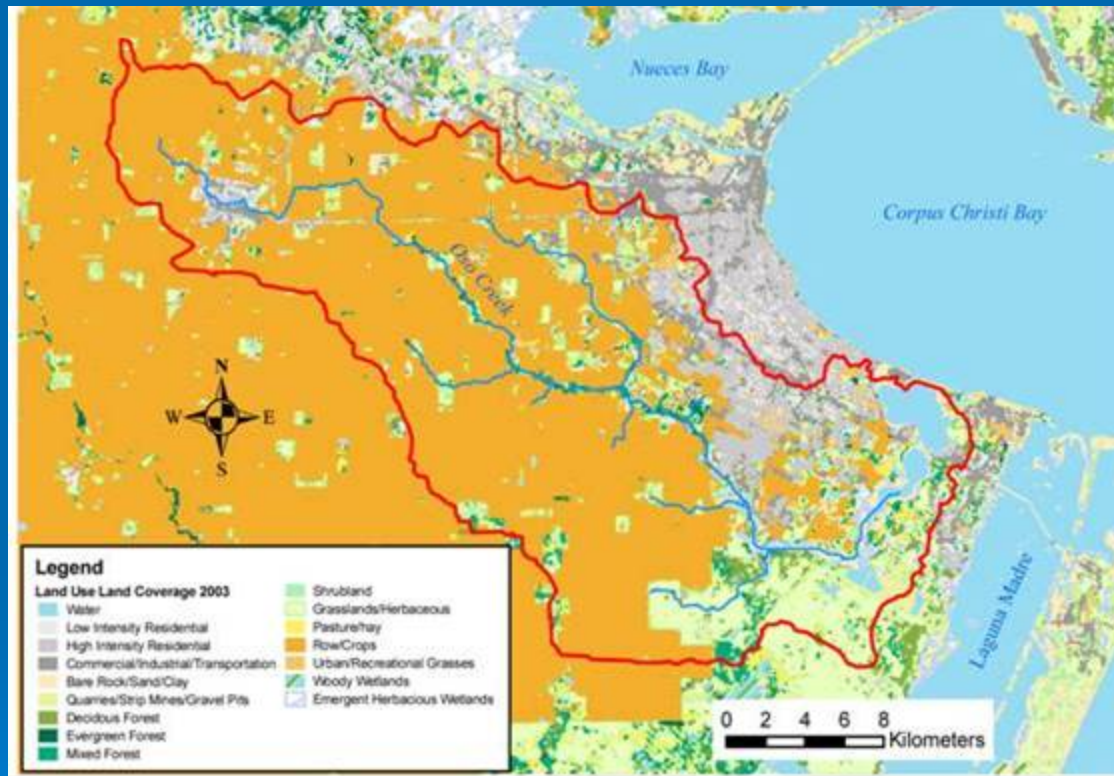
Alternative values may be provided and distribution recalculated.

- **Percent load reductions are estimates of effort needed, NOT very useful as goals to achieve. Goals of the TMDL should be instream concentrations.**

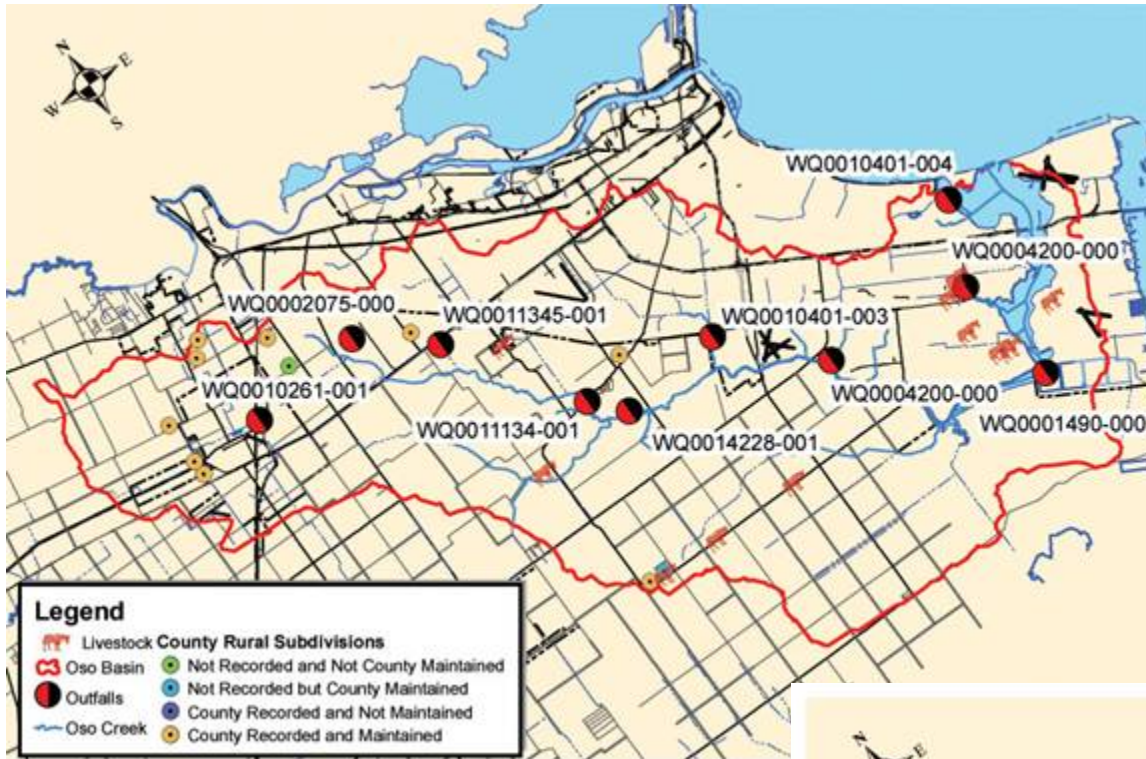
# Brief Review of Model Analyses



# Oso Watershed Land Use/Land Cover Map



NLCD Classifications for Oso Basin				Oso Model Classifications for EC application
class ID	Type	Area (square meters)	% of Total	
11	Water	12,365,625	2.03%	Not Classified
21	Low Intensity Residential	11,045,693	1.81%	Residential
22	High Intensity Residential	35,128,910	5.77%	Residential
23	Commercial/Industrial/Transportation	27,908,531	4.58%	Commercial/Industrial/Transportation
31	Bare Rock/Sand/Clay	12,942,915	2.13%	Not Classified
32	Quarries/Strip Mines/Gravel Pits	7,789,829	1.28%	Not Classified
33	Transitional	0	0%	-----
41	Deciduous Forest	10,150,382	1.67%	Not Classified
42	Evergreen Forest	3,874,244	0.64%	Not Classified
43	Mixed Forest	11,596,810	1.91%	Not Classified
51	Shrubland	6,716,444	1.10%	Cropland/Rangeland
61	Orchards/Vinyards/Others	0	0%	-----
71	Grasslands/Herbaceous	64,285,045	10.56%	Cropland/Rangeland
81	Pasture/Hay	8,821,194	1.45%	Cropland/Rangeland
82	Row Crops	381,741,357	62.71%	Cropland/Rangeland
83	Small Grains	0	0%	-----
84	Fallow	0	0%	-----
85	Urban/Recreational Grass	6,654,853	1.09%	Cropland/Rangeland
91	Woody Wetland	3,642,858	0.60%	Not Classified
92	Emergent Herbaceous Wetlands	4,037,207	0.66%	Not Classified
Total		608,701,897	100.00%	

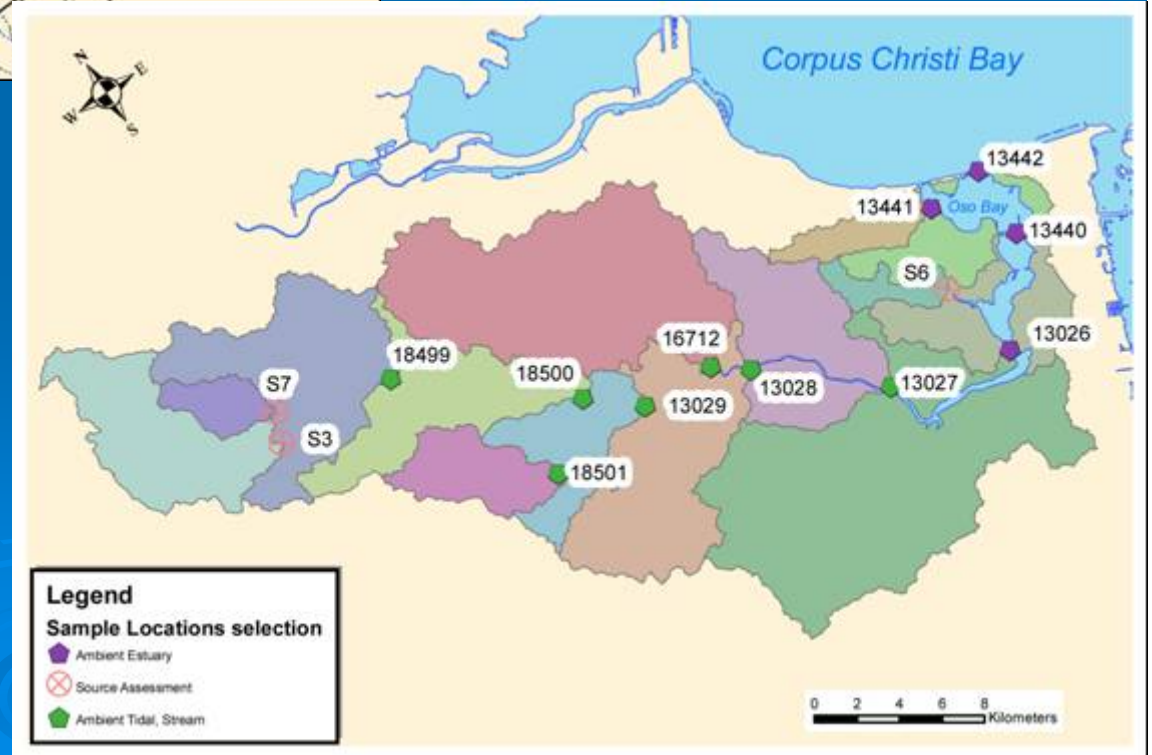


## <<<< Potential Sources Identified by Sanitary Survey

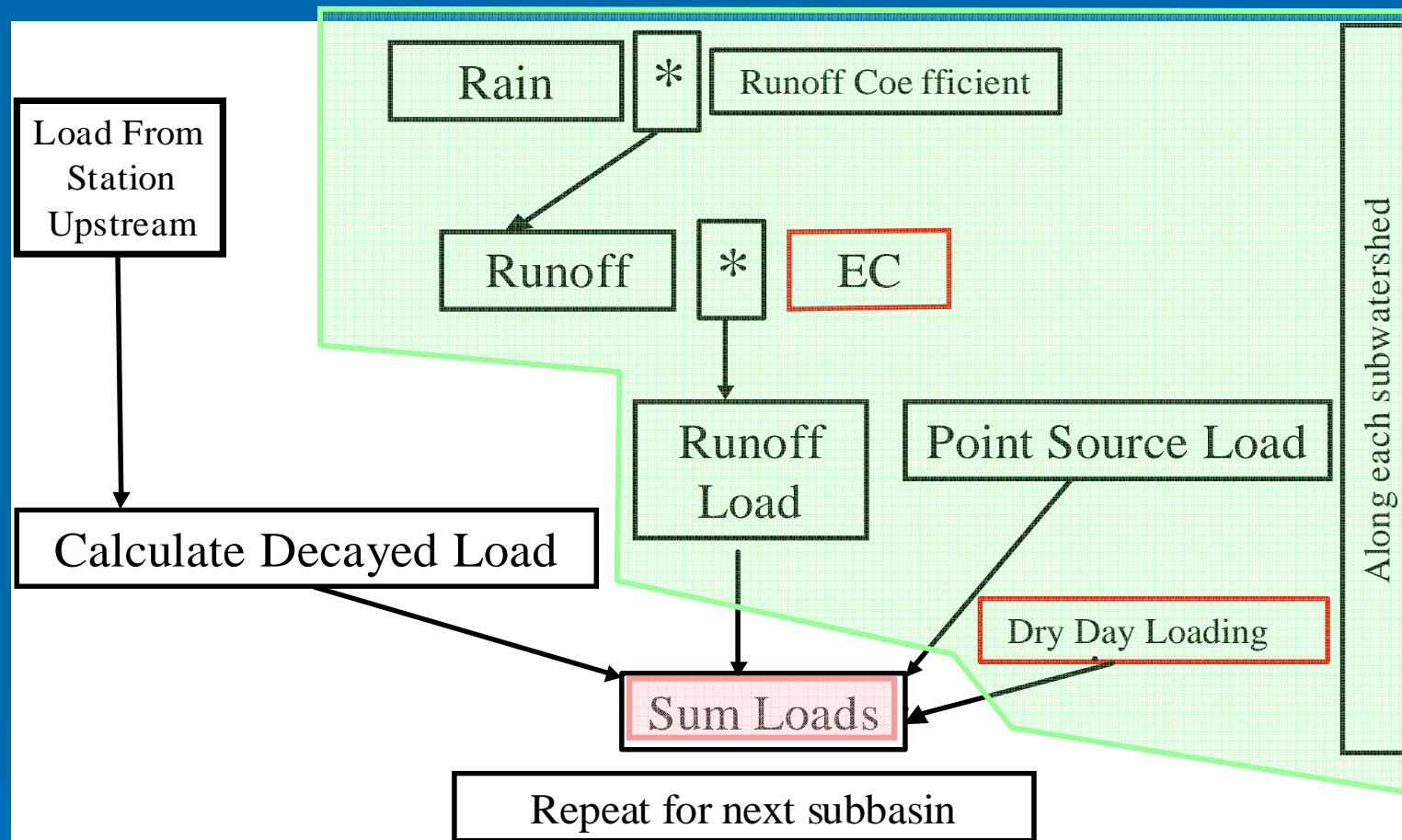
Both Figures are from the 2005 modeling report

## Oso Model Subbasins >>>>>

14 shown were combined into 10 for model simulations



## Schematic Diagram of Model Calculations



Runoff loads from each subbasin were calculated based on areas covered by each of seven land use types, and the EC values assigned for each land use type.

## Dry Day Loading Rates Estimated by Modeling

Station ID	Enterococcus Dry Day Loading Rates (x10 <sup>12</sup> cfu/time unit)		
	per 2-hr time step	per day	per year
18499	0.00459	0.05508	20.104
18500	0.00544	0.06528	23.827
13029	0.000640	0.00768	2.803
16712	0.0113	0.13560	49.494
13028	0.0379	0.45480	166.002
13027	0.141	1.69200	617.580
13026	0.0246	0.29520	107.748
13440	0.0307	0.36840	134.466
13441	0.00168	0.02016	7.358
13442	0.0650	0.78000	284.700

10<sup>12</sup> = one trillion

EC values were based on local storm runoff data collected during 2006. Regression analyses then correlated runoff quality to land use composition of monitored subbasins, to derive these values tested by model calibration.

Dry Day loading rates were derived by model calibration – these are the rates required to calibrate the model to observed data.

## Storm Runoff Event Concentrations Used in Modeling

Enterococcus EC Value (cfu/100mL)	Seven Land Use Types with EC values used
353,829	Residential
305,332	Commercial/Industrial/Transportation
62,807	Cropland/Rangeland
0	Not Classified

## Existing Loading (Annual) from Model Calibration And Resulting Model Output Concentrations

Sub-basin	All Loads are x10 <sup>12</sup> cfu/year							Concentrations in cfu/100mL	
	Annual Dry Loading	WWTP Annual Loading	RESID	URBAN	CROP	RANGE	Total Subbasin Loads	Geometric Mean Concentration from Model	25 % Exceedence Concentration from Model
18499	20	0.07	341	219	886	67	1533	<b>1366.3</b>	<b>1199.9</b>
18500	24	0.00	5	2	263	12	307	<b>1321.6</b>	<b>1471.3</b>
13029	3	0.00	2	2	219	8	235	<b>909.0</b>	<b>1108.7</b>
16712	50	0.40	299	575	753	117	1793	<b>569.1</b>	<b>797.5</b>
13028	166	0.00	14	23	453	33	689	<b>367.6</b>	<b>434.5</b>
13027	616	0.00	1154	631	294	76	2770	<b>349.3</b>	<b>380.0</b>
13026	108	0.00	144	125	737	422	1536	7.9	5.8
13440	134	0.00	668	300	84	156	1343	7.7	5.7
13441	7	0.79	516	178	0	14	716	<b>80.5</b>	50.1
13442	285	0.00	448	403	38	59	1233	12.6	9.3

creek	11.98%	0.01%	24.77%	19.82%	39.13%	4.28%	100.00%
bay	11.06%	0.02%	36.79%	20.84%	17.82%	13.48%	100.00%

Percent contributions by source type for creek and bay watersheds

## Loading and Model Results with Dry-Day Loading removed

(about 12% reduction for creek, 11% reduction for bay)

Subbasin	All Loads are x10 <sup>12</sup> cfu/year							Concentrations in cfu/100mL	
	Annual Dry Loading	WWTP Annual Loading	RESID	URBAN	CROP	RANGE	Total Subbasin Load	Geometric Mean Concentration from Model	25 % Exceedence Concentration from Model
18499	0	0.07	341	219	886	67	1513	<b>36.0</b>	<b>419.4</b>
18500	0	0.00	5	2	263	12	283	<b>39.4</b>	<b>929.0</b>
13029	0	0.00	2	2	219	8	232	<b>38.6</b>	<b>793.4</b>
16712	0	0.40	299	575	753	117	1743	<b>45.9</b>	<b>558.1</b>
13028	0	0.00	14	23	453	33	523	26.4	<b>247.4</b>
13027	0	0.00	1154	631	294	76	2155	20.8	<b>175.7</b>
13026	0	0.00	144	125	737	422	1428	2.7	2.3
13440	0	0.00	668	300	84	156	1209	2.5	2.2
13441	0	0.79	516	178	0	14	709	13.6	5.4
13442	0	0.00	448	403	38	59	948	2.5	2.1

creek	0.00%	0.01%	28.15%	22.52%	44.46%	4.86%	100.00%
bay	0.00%	0.02%	41.36%	23.43%	20.03%	15.15%	100.00%

Percent contributions by source type

“Allowable Loading” (Annual) Scenario from Model Exercise  
And Resulting Model Output Concentrations

Sub-basin	All Loads are x10 <sup>12</sup> cfu/year							Concentrations in cfu/100mL	
	Annual Dry Loading	WWTP Annual Loading	RESID	URBAN	CROP	RANGE	Total Subbasin Load	Geometric Mean Concentration from Model	25 % Exceedence Concentration from Model
18499	0	0.07	24	15	62	5	106	13.5	31.8
18500	0	0.00	1	0	26	1	28	10.8	68.6
13029	0	0.00	2	2	219	8	232	13.2	96.6
16712	0	0.40	30	57	75	12	175	15.7	67.7
13028	0	0.00	14	23	453	33	523	10.8	59.9
13027	0	0.00	577	316	147	38	1077	11.6	78.7
13026	108	0.00	11486	10028	58988	33729	114340	20.0	68.1
13440	134	0.00	20049	9003	2535	4677	36398	21.3	71.4
13441	0	0.79	5159	1780	1	138	7080	23.5	15.6
13442	285	0.00	13446	12083	1143	1778	28734	28.4	58.2

creek	0.00%	0.022%	30.23%	19.33%	45.88%	4.53%	100.00%
bay	0.28%	0.000%	26.88%	17.63%	33.59%	21.61%	100.00%

Percents of allowable load by source type for creek and bay watersheds

## Percent Load Reductions Indicated by Modeling for Allowable Loading

Percent Reductions:							
Subbasin	Annual Dry Loading	WWTP Annual Loading	RESID	URBAN	CROP	RANGE	Total Load
18499	100.00%	0.00%	93.00%	93.00%	93.00%	93.00%	93.09%
18500	100.00%		90.00%	90.00%	90.00%	90.00%	90.78%
13029	100.00%		0.00%	0.00%	0.00%	0.00%	1.19%
16712	100.00%	0.00%	90.00%	90.00%	90.00%	90.00%	90.26%
13028	100.00%		0.00%	0.00%	0.00%	0.00%	24.07%
13027	100.00%		50.00%	50.00%	50.00%	50.00%	61.11%
13026	0.00%		NA	NA	NA	NA	NA
13440	0.00%		NA	NA	NA	NA	NA
13441	100.00%	0.00%	NA	NA	NA	NA	NA
13442	0.00%		NA	NA	NA	NA	NA
							<b>Creek</b>
							<b>70.77%</b>
							<b>Bay</b>
							<b>0.15%</b>
							<b>entire watershed</b>
							<b>42.72%</b>

A limited number of model scenarios have been reported and presented here.

Other scenarios might pare the loading reductions more finely, so that predicted stream concentrations are closer to the water quality standards. That would reduce the margin of safety, but could also decrease the percent reductions needed and increase the allowable loading to be allocated by the TMDL.

A change in the designated use for parts of the watershed could significantly change the estimated effort. An *Enterococcus* geometric mean standard for a “secondary contact recreation” use would be approximately 5 times higher than for the current “primary contact recreation” use.

## QUESTIONS for stakeholders:

Should the initial phase of the implementation plan include a use assessment, to determine if a “secondary” standard is appropriate in some areas, before seeking major runoff load reductions?

Should there be additional model scenarios analyzed?

If so, runoff sources would probably have to be reduced by varying amounts, not evenly ‘across the board’ as previously done. Which type(s) should be reduced first? Or in what order?

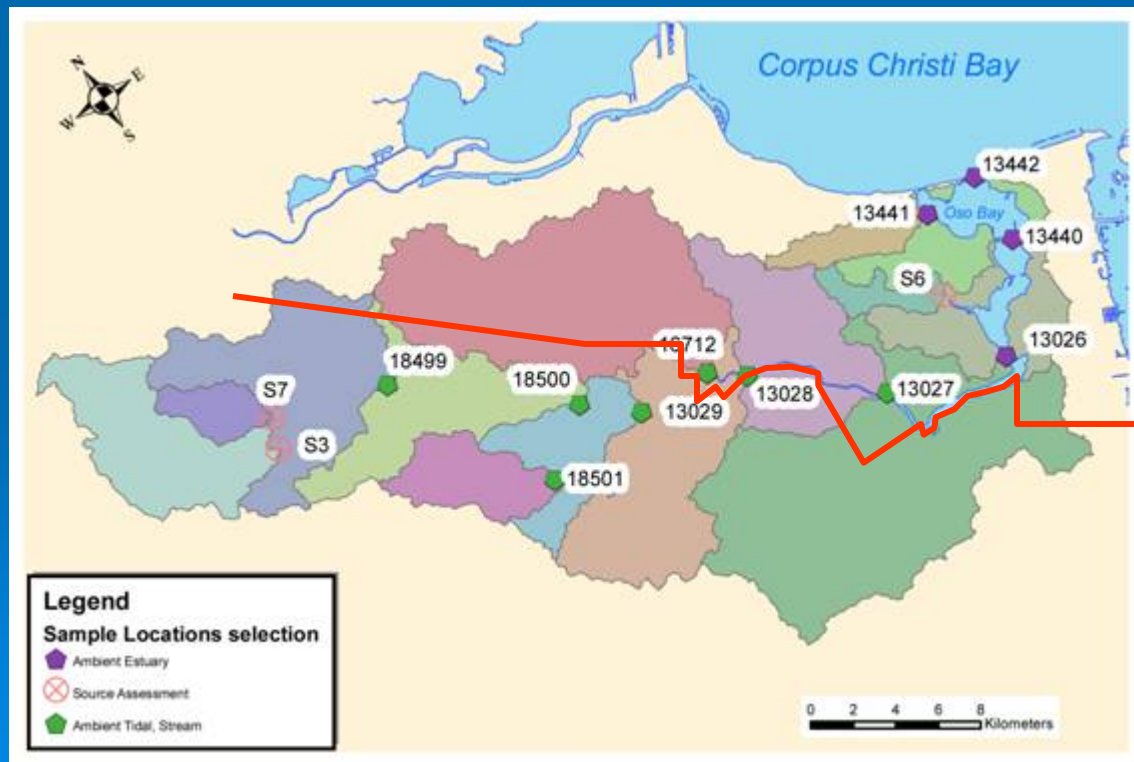
# Converting Model Results to Load Allocation Tables



## Distributing Loading Between “Point” and “Nonpoint” Sources

Storm water runoff loading from within Corpus Christi city limits is covered by the city MS4 permit, so is considered “point source” for allocation. Red line approximates city limit within Oso watershed, and was used to estimate fraction of each model subbasin covered by MS4 permit. Estimated fractions for each subbasin are shown in table.

**If better estimates are provided, LA & WLA load distribution can be recalculated. Total allowable in each subbasin would not change due to redistribution between LA and WLA categories.**



Model subbasin	Estimated Fraction in CC
18499	0.06
18500	0.00
13029	0.00
16712	0.85
13028	0.05
13027	0.64
13026	0.21
13440	1.00
13441	1.00
13442	1.00

# One possible TMDL Summation Table

Based on modeled "allowable load" scenario presented above

Storm Runoff Loading from within Corpus Christi city limit is in the "point source" WLA

Subbasin	"Nonpoint" LA +	"Point" WLA =	TMDL
18499	99.55	6.42	105.97
18500	28.28	0.00	28.28
13029	232.00	0.00	232.00
16712	26.14	148.53	174.67
13028	497.04	26.16	523.20
13027	387.81	689.44	1077.25
13026	90328.30	24011.32	114339.62
13440	0.00	36398.41	36398.41
13441	0.00	7079.79	7079.79
13442	0.00	28733.79	28733.79
creek	1270.82	870.56	2141.38
bay	90328.30	96223.31	186551.61
watershed	91599.12	97093.87	188692.98
<b>All Loads x10<sup>12</sup> cfu/year</b>			



10<sup>12</sup> = one trillion

FOR DISCUSSION PURPOSES ONLY

ONLY

# One possible TMDL Summation Table Restated in DAILY Load Units

Based on modeled "allowable load" scenario presented above,

Annual values divided by 365

Subbasin	"Nonpoint"		"Point"		TMDL
	LA	+	WLA	=	
18499	272.74		17.60		290.34
18500	77.48		0.00		77.48
13029	635.62		0.00		635.62
16712	71.62		406.94		478.56
13028	1361.75		71.67		1433.42
13027	1062.49		1888.88		2951.37
13026	247474.79		65784.44		313259.23
13440	0.00		99721.67		99721.67
13441	0.00		19396.67		19396.67
13442	0.00		78722.71		78722.71
creek	3481.70		2385.09		5866.79
bay	247474.79		263625.50		511100.29
watershed	250956.49		266010.59		516967.08

Loads in 10<sup>9</sup> cfu/day

10<sup>9</sup> = one billion

A more complex statistical method exists, that would calculate MUCH larger "maximum daily" allocation values but require the same percent reductions on annual basis.

Method is difficult, I don't yet know whether it is appropriate in this situation. Permit-regulated point sources might benefit from this, but not clear. It may be more trouble than it is worth.

FOR DISCUSSION PURPOSES ONLY  
NOT FINAL

TCEQ proposes defining two TMDLs, for the Creek and Bay individually, for EPA approval. Documents would also show the subbasin and source type detail shown in model output tables. But there could be separate TMDLs for each model subbasin, 10 in all, or a single TMDL for the entire bay + creek watershed.

(In 1-Plan, the WLA will be subdivided between WWTP and MS4 sources.)

Creek:

LA	+	WLA	=	TMDL	
3,481.70	+	2,385.09	=	5,866.79	x10 <sup>9</sup> cfu/day

Bay:

LA	+	WLA	=	TMDL	
247,474.79	+	263,625.50	=	511,100.29	x10 <sup>9</sup> cfu/day

Equations are based on the example tables shown previously. **Values are not final.**

# Implementation Plan Outline

General Concepts

Source-specific types of activities

Phases or sequence of implementation

Measuring success



Types of loading sources that need reduction:

**Dry day** – may consist of:

- illegal dumping or discharges,
- dysfunctional septic tanks,
- leaking sanitary sewer lines,
- unsewered subdivisions [colonias],
- pets/livestock,
- wildlife,
- other???

Storm runoff driven –

**Residential** land use

**Urban** land use (Commercial/Industrial/Transportation)

**Crop** land use

**Range** land use

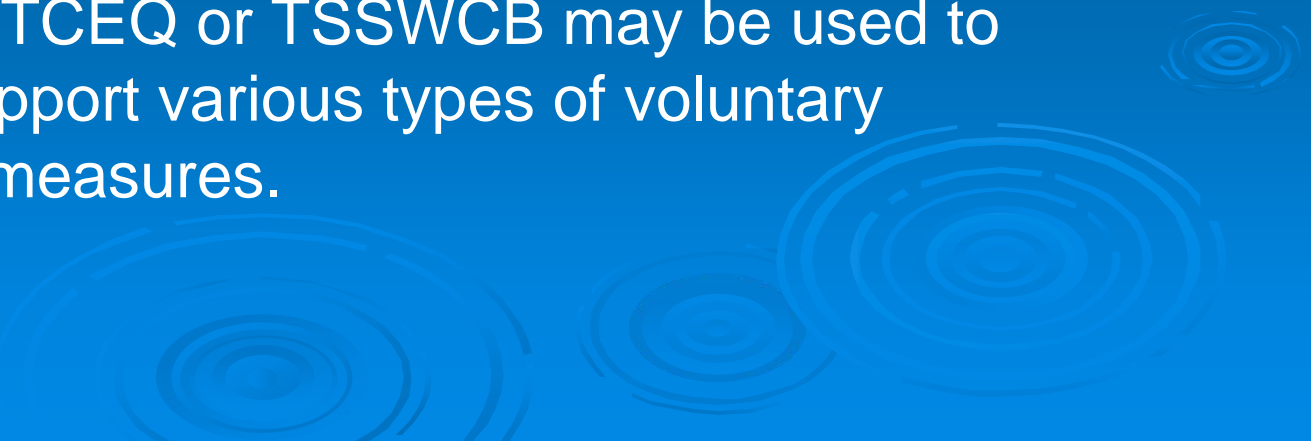
**WWTP** discharges were found to meet WQ standards, and comprised a very small fraction of overall loading (< 0.03% on annual basis), but will be required to continue meeting the standards. I-Plan will allocate some loading to WWTP discharges for inclusion in their permits – how much is not yet determined.

Implementation Plan is expected to utilize existing regulations and regulatory programs. A TMDL or its I-Plan are not “rules” and cannot create new regulations – that requires either legislation or the TCEQ rule-making procedure, which are independent of TMDL or I-Plan development and adoption.

No new rules or changes to existing regulations are contemplated relative to the Oso watershed TMDLs – **except** that recreational use designation for parts of the Oso system may be reconsidered during initial phase of implementation. If changes occur from the use attainability assessment, adaptive management would change the TMDL and I-plan and subsequent load reduction efforts.

Implementation of some existing regulations may be encouraged or enhanced by Federal grant funding, e.g. grant to determine where septic tank improvements are needed.

Some implementation measures will be voluntary (i.e. not required by law or rules). Federal grant funding administered by TCEQ or TSSWCB may be used to encourage or support various types of voluntary implementation measures.



# Possible Implementation Measures

## **Crop and Range land**

**Scientific studies** to determine why runoff concentrations appear unexpectedly high, and determine appropriate management practices.

**Voluntary BMPs** encouraged, recommended, or supported by TSSWCB. Federal 319 grant funds may provide assistance.

Storm runoff from typical crop or range land (i.e. that is NOT part of a permit-regulated CAFO or waste application site) is generally exempt from Clean Water Act regulation.

# Possible Implementation Measures

## **Illegal Dumping**

Local regulations already exist. Local entities may develop projects to reduce bacteria loading by **locating and removing dumped materials**, by **supporting local enforcement efforts**, and by **public education** to reduce the occurrence of illegal and inappropriate waste disposal.

The Corpus area COG is currently coordinating plans to begin similar activities with Federal 319 grant funds. The I-plan can support, and may enhance the likelihood of, receiving future grant funding to continue such projects.

# Possible Implementation Measures

## **“Unconfined” Livestock and pets**

(horses, dogs, etc.)

“Unconfined” here means “not associated with a permit-regulated CAFO”

**Public education and voluntary efforts** to improve waste management. The Clean Water Act does not authorize direct regulation of these sources by TCEQ or EPA.

Those in urban areas covered by MS4 permits may already be subject to local regulations, which may change or be enforced more rigorously as result of SWMP changes. I-Plan would not directly make any changes to local ordinances.

Those in rural areas may be subject to local requirements.

# Possible Implementation Measures

## **Wildlife or Feral animals**

Wildlife, meaning all native bird and animal species so defined by TPWD, would/could only be controlled under TPWD programs with TPWD direction and assistance. At this time, TCEQ does not anticipate that efforts to significantly limit or reduce wildlife populations will be necessary or appropriate in the Oso watershed.

Feral animals not defined as wildlife by TPWD may be addressed by some kind of local initiative that complies with appropriate **game laws and animal control ordinances**. These species could include feral pigs, feral housecats or dogs, pigeons, starlings. Local entities, not TCEQ, would be expected to organize and lead any effort of this type.

# Possible Implementation Measures

## Wastewater Treatment Plants

**Specific limits for bacteria** based on the load allocation may be added to permits, along with existing disinfection requirements. Monitoring and self-reporting of permit bacteria limits would then be required also.

Additional efforts to locate, prevent, and reduce bypasses from plants or collection systems may be encouraged or required. Leaks and bypasses are already prohibited and must be controlled, so this would not be a “new” requirement.

# Possible Implementation Measures

## Storm water permits (MS4)

**Storm Water Management Plan** prepared by permittee would be required to address Enterococcus, with the ultimate goal of finding and implementing feasible best management practices (BMPs) that will reduce/control bacteria loading. **Public education** may also be part of the SWMP.

SWMP should consider retrofitting or upgrading BMPs within already developed areas, and appropriate BMPs to reduce loading from new development to the extent possible (i.e. Low Impact Development concept and approach). SWMP is likely to require monitoring for Enterococcus, which may be a “new” parameter for the MS4 permit. The SWMP may also address dry weather leaks or wet weather overflows from sanitary sewer systems, with the goal of developing a plan for finding and controlling those sources in cooperation with the WWTP management entities.

MS4 permits are unlikely to contain “not to exceed” concentration or enforceable daily or annual load limits. SWMPs are more likely to use a “percent reduction” goal of some type.

# Possible Implementation Measures

## **Urban/Residential areas outside Corpus Christi**

Will be expected to **comply with any Federal or local storm water management rules** and requirements that may apply. **Public education** may encourage or increase voluntary improvements.

TCEQ does not anticipate developing new regulations or programs. However, TCEQ does have the option of declaring such areas to require MS4 permits even though current population may be less than the normal limits for that requirement.

# Possible Implementation Measures

## **Colonias and/or rural subdivisions**

Local entities can use Federal grant funds to reduce bacteria loading **by connecting colonias to sewer systems, installing functional OSSF** if none exist, etc. As such areas enter county or city jurisdiction, any other existing county or municipal regulations or programs that could affect/control wastewater management will be expected to address bacteria loading.

A recent grant to the Coastal Bend Bays and Estuaries Program will provide funds for identifying where improvements of this type are needed. Later grant funding may assist actual construction.

# Possible Implementation Measures

## **Dysfunctional Septic Tanks**

TMDL I-Plan may support or require **enhanced efforts by local regulatory authority to enforce existing OSSF rules**. TMDL provides justification for using Federal grant funds to reduce septic tank problems, provide connections to collection systems, etc. **Public education** may support and enhance regulatory efforts.

A recent grant to the Coastal Bend Bays and Estuaries Program will provide funds for identifying where improvements of this type are needed. Later grant funding may assist actual construction.

## Example of an I-Plan Load Allocation Table

NPS types combined to subbasin totals

All load values in daily units required by EPA

Nonpoint Source types:						$\times 10^9$ cfu/day	Point Source types:	
Subbasin	ESID	BAN	DROP	ANGE	TCLS	NPS total	WWTP	MS4
18499	###	###	####	####	####	272.7365	0.3407	17.4087
18500	###	###	####	####	####	77.4795	0.0002	0.0000
13029	###	###	####	####	####	635.6164	0.0091	0.0000
16712	###	###	####	####	####	71.6178	0.9085	405.8342
13028	###	###	####	####	####	1361.7534	0.0000	71.6712
13027	###	###	####	####	####	1062.4932	0.0000	1888.8767
13026	###	###	####	####	####	247474.7940	0.0000	65784.4389
13440	###	###	####	####	####	0.0000	0.0000	99721.6712
13441	###	###	####	####	####	0.0000	1.8397	19394.5205
13442	###	###	####	####	####	0.0000	0.0000	78722.7123
creek	###	###	####	####	####	3481.6968	1.2584	2383.7909
bay	###	###	####	####	####	247474.7940	1.8397	263623.3430
watershed	###	###	####	####	####	250956.4907	3.0981	266007.1339
						<b>billion cfu/day</b>		

WWTP allocation based on each existing permitted facility discharging full permitted flow at *Enterococcus* concentration of 3 cfu/100mL for domestic and 0 cfu/100mL for industrial (could be changed), distributed by subbasin containing outfall points. MS4 allocation represents Corpus Christi storm water discharged under permit.

This totals to slightly less than the “allowable load.” Larger WWTP allocation would reduce MS4 or NPS allocation to keep overall total equal to TMDLs.

## Possible **I-Plan Phase 1**

- Initial focus on defining and reducing dry-day loading, by ...
- Public Education regarding sources and issues
- Local efforts to reduce and clean up illegal dumping or discharges
- Voluntary measures to address any sources (dry-day, urban, agricultural)

(continues)

# Possible **I-Plan Phase 1**

(continued)

and,

- Scientific studies of apparent loading from agricultural lands, to determine causes and best management measures
- Permit limits for WWTPs, permit conditions for MS4
- Contact Recreation Use Assessment for parts of Oso system
- Monitor water quality to measure progress

# Possible I-Plan Phase 2

Any of these may proceed independently at appropriate time

- If use designation is revised, reassess load reductions needed (via modeling), and revise TMDL as appropriate
- Implement appropriate BMPs for agricultural sources based on Phase 1 studies, via existing agricultural assistance programs
- Consider any new ideas or management practices that may enhance water quality improvement  
and
- Continue monitoring water quality
- Continue education and voluntary measures, WWTP limits, etc.

# How to Measure Success?

I suggest:

Measuring Enterococcus concentrations at several creek and bay monitoring stations (subbasin outlets in model) as frequently as possible and comparing annual geometric mean to the water quality standard of 35 cfu/100ml.

Why:

Instream concentrations are what really matters as far as contact recreation exposure, and for other assessments of water quality.

Percent load reductions are nearly impossible to measure for any nonpoint source type (including MS4 stormwater), so it would be very difficult to demonstrate either progress or lack thereof.

Geometric mean concentration standard may be attainable with less load reduction than modeling indicates, in which case it would be better to measure the effect than the effort. If opposite case occurs, it is still better to measure effect than effort.

But there may be other ways, instead or as well . . .

# Where to Measure Success?

I suggest: sites that are most representative of contact recreation waters, and most likely to be used for swimming.

NOT at the Blind Oso birding area and rookery (station 13441). Even without the birds, the site is in a wetland, extremely shallow, and ambient water chemistry is not representative of Oso Bay.

NOT in very shallow to intermittent upper reaches of Oso Creek channel. Those areas are unlikely to have regular contact recreation use, and water is generally either too shallow (bottom sediment affects bacteria measurements) or too recently run off the land surface (settling and other processes have not yet had opportunity to reduce bacteria concentrations) to provide data representative of contact recreation conditions or sites.

(These are the areas where designated use might be reassessed.)

Local residents and stakeholders may suggest which sites to use. In order to compare data to model output, sites need to be at or near those used to define model subbasin outlets.

Some questions that may need stakeholder input for I-plan development:

How should allowable load be allocated among the WWTP discharges? Should the concentration(s) of Enterococcus used for domestic and industrial WWTPs be the same or different?

What concentration(s) should be assumed for calculating the load expected from/permitted for each WWTP? Some assumptions could require that small amounts be taken from the MS4 or NPS allocations to cover the WWTPs.

Do you know of other feasible ways to achieve load reductions for any of the sources?

Are there other ways, or specific places, you would recommend for measuring success?

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