

Comparison table of TMDL reports and shoreline/sanitary surveys

Documents included in the tables below:

TMDLs

1. California Regional Water Quality Control Board, San Diego Region. Total Maximum Daily Loads for Indicator Bacteria. Project I – Beaches and Creeks in the San Diego Region, 2007 (CA)
2. Lake Michigan Shoreline TMDL for *E.coli* Bacteria, 2004 (IN)
3. Grays Harbor/Chehalis Watershed Fecal Coliform Bacteria Total Maximum Daily Load Submittal Report, 2002 (WA)
4. Ten Total Maximum Daily Loads for Total Coliform to Address Shellfish-Impaired Waters in Watershed Management Area 16 Atlantic Coastal Water Region, Amendment to the Cape May County and Lower Delaware Water Quality Management Plans, 2006 (NJ)

Shellfish

5. Conducting a Shoreline Survey (ME)
6. Shoreline Survey of the Discovery Bay Shellfish Growing Area, 2003 (WA)
7. Sanitary Survey of Holmes Harbor, 2006 (WA)
8. Sanitary Survey – Shellfish Growing Area 46-47. Brigantine to Spray Beach 1992-1997 (NJ)

PART 1: BEACH SETTING								
	TMDLs				Shellfish			
	1	2	3	4	5	6	7	8
1. Description of park uses around the beach		✓						
Sources of pollution	✓	✓	✓	✓	✓	✓	✓	✓
Description of watershed	✓	✓	✓	✓		✓	✓	
Historical land Use		✓						
Current land use	✓	✓		✓		✓	✓	✓
Map of area (basic, detailed, topographic, or with locations of pollution sources, etc.)	Basic, topo	Topo	Basic, urban drains, pollution sources	Land use, pollution sources	Use of topo, tax map recommended	Topo, drainages/ agricultural activity discharges map	Major/potential sources, agricultural site maps	Basic, stormwater discharge maps
Photographs						✓		

PART 1: BEACH SETTING

	TMDLs				Shellfish			
	1	2	3	4	5	6	7	8
2. Description of beach		✓						
Dimensions of waterbody			✓				✓	
Beach length or dimensions		✓	✓			✓		✓
Water level variation/hydrographic influences, dilution or mixing rate		✓	✓					
Slope								
Tidal range								
Bounding structures								
Average water temperature								
Average air temperature								
Weather observations		✓						
Wind speed and direction		✓					✓	✓
Beach materials/sediments								
3. Information on sampling station								
Name of and distance to lab								
Location or map of sampling station	✓	✓	✓			✓	✓	✓
Description of sampling station			✓			✓		
Time of sample collection							✓	
Review of sampling plan								
Review of equipment maintenance or calibration procedures								

PART 1: BEACH SETTING								
	TMDLs				Shellfish			
	1	2	3	4	5	6	7	8
Description of hydrometric network								
4. Bather load		✓						
Historical average								
Current average								
Peak								
Seasonal average								
Holiday average								
Weekend average								
Weekday average								
Off-season average								
Swimmer/bather ratio								
Non-bather load (fishing, clamming, etc.)								
5. Description of water resources								
Location/map of uses such as boat traffic, marinas, boat dockage, canoeing, fishing, etc.				✓	✓			
Checklist of uses such as boating, fishing, surfing, windsurfing, diving, etc.					✓			

PART 2: BEACH OPERATION & MAINTENANCE								
	TMDLs				Shellfish			
	1	2	3	4	5	6	7	8
1. Beach operation								
Beach season dates								
Description of clean up			✓					

PART 2: BEACH OPERATION & MAINTENANCE

	TMDLs				Shellfish			
	1	2	3	4	5	6	7	8
activities								
Litter survey (percent cover for debris, algae, tar balls, oil, trash, grease, plastic, medical waste, wrack, etc.								
2. Bacteriological monitoring	FC, TC, <i>Enterococci</i>	<i>E.coli</i>	FC	FC, TC		FC	FC	TC, FC
Biological survey results (objectionable vegetation, algal blooms infectious snails, dangerous aquatic organisms, domestic animals)								
Bacteria sample results (<i>e. coli</i>, enterococcus, fecal coliform, etc.)								
Sample type								
Analytical method				Non-ocean waters: SRS; Ocean water: APC protocols. FC: 5-tube analysis, TC:3-tube dilution analysis			APHAa-1 Method (5-tube/3-dilution Method)	3-tube MPN Method
Name of sampler								
Name of lab								
Sampling and notification procedures								
3. Other water quality monitoring (results or sampling and notification								

PART 2: BEACH OPERATION & MAINTENANCE

	TMDLs				Shellfish			
	1	2	3	4	5	6	7	8
procedures, records)								
Color, taste, odor, floatables, etc.								
Secchi disk results								
DO								✓
Temperature	✓		✓				✓	✓
pH								✓
Rainfall	✓			✓			✓	
Turbidity								
Conductivity								
Alkalinity								
Ammonia								✓
Nitrate								
COD								
Salinity			✓				✓	
River discharge	✓	✓	✓				✓	
Tides			✓				✓	
Wet sampling	✓							
4. Samples taken from storm drains							✓	
5. Modeling	✓	✓	✓	✓				

PART 3: BEACH WATER QUALITY

	TMDLs				Shellfish			
	1	2	3	4	5	6	7	8
1. Bacterial data analysis (history of exceedances)								
2. Closings								

PART 3: BEACH WATER QUALITY

	TMDLs				Shellfish			
	1	2	3	4	5	6	7	8
3. Public comments or complaints								
4. Results from other studies on water quality, previous sanitary surveys	✓	✓	✓	✓	✓	✓		✓
5. Rainfall history, effects on water quality								
6. Potential pollution sources (risk factor, distance from beach, etc.)			✓		✓			
Wastewater dischargers			✓		✓	✓		✓
Sewage overflows	✓				✓	✓		
Septic systems	✓	✓			✓			
Subsurface sewage disposal								
Stormwater outfalls	✓				✓		✓	✓
Natural outfalls					✓			
CAFOs or AFOs	✓				✓			
Wildlife		✓			✓		✓	
Agriculture runoff	✓				✓	✓	✓	
Urban runoff, industrial waste	✓				✓		✓	
Marinas, harbors		✓			✓			
Mooring boats		✓			✓			
Domestic animals								
Unsewered areas					✓			
Erosion-prone areas								
Landfills, open dumps					✓			
Ground water seepage								
Bathroom leakage		✓						
Drains and pipes nearby			✓		✓		✓	

PART 3: BEACH WATER QUALITY

	TMDLs				Shellfish			
	1	2	3	4	5	6	7	8
Stream or wetland drainange	✓							
Vacant areas								

PART 4: DESCRIPTION OF SANITARY & OTHER NEARBY FACILITIES

	TMDLs				Shellfish			
	1	2	3	4	5	6	7	8
1. Description of sanitary facility (number, condition and location of each item, distance from beach)		“Restroom facilities”						
Toilets								
Showers								
Sinks								
Water fountains								
Changing area								
Baby-changing area								
Litter bins								
2. Description of other facilities								
Restaurants								
Bars								
Designated bathing areas								
Diving areas								
Children’s play area								
Car parks								
3. Other items on checklists								

PART 4: DESCRIPTION OF SANITARY & OTHER NEARBY FACILITIES

	TMDLs				Shellfish			
	1	2	3	4	5	6	7	8
Swim safety warnings								
Lifeguards								
4. Last major rehabilitation								
5. Wastewater treatment system								