COMMONWEALTH OF
PUERTO RICO
Environmental Quality Board

Assessment Methodology for 305(b)/303(d) Integrated Report 2014 Cycle

Plans and Special Projects Division

Evaluation and Strategic Planning Area

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EQB
ENVIRONMENTAL QUALITY BOARD
COMMONWEALTH OF PUERTO RICO

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Assessment Methodology Used for 305(b)/303(d) Integrated Report for 2014 Cycle

1.0 Assessment Units (AU)

1.1 Assessment Unit for Inland Waters

The PREQB uses the river basins system for planning activities and implementation of restoration efforts. In order to achieve these efforts in a more effective manner, we have replaced the old system based on the segmentation of small portions of rivers and individual creeks by basin segmentation system that has been implemented since the 2006 reporting cycle (See Figure 1). The non-contributions basins are those areas, contribute to the coastal shoreline instead of the inland waters. Under this system, each main river basin it is divided in assessment units that consist of complete sub-basins. The smaller river basins have been maintained as a single assessment unit or, at the most, it may be segmented in two assessment units. For 2014 there are 215 Assessment Units, the increase is because some estuary river area where outline, thus in turn the subbasin were segmented again.

Each AU generally consists of one of the following:

- A section of the main basin, with the corresponding minor first order tributaries.
- Sub-basin represented by major first order tributary (a river or stream that flows directly into main basin), second order tributary (a river or stream that flows into a first order tributary, and in some cases, third order tributary (a river or stream that flows into a second order tributary).
- In cases where either the main basin or any major tributary includes a lake (reservoir), the lake constitutes another AU. The AU defined by the lake includes the lake (from the dam up to the highest reach that defines the lake) and all the immediate minor tributaries that discharge directly to the lake. This new AU for lakes results in a decrease in stream miles and an increase in lake surface area.

The total number of basins currently being assessed totals 96, including the San Juan Bay Estuary System. This is the only estuary identified as a separate basin due to its complex composition and interrelation of streams, lagoons, channels and closed bay. The composition of the San Juan Bay Estuary System presented here is the same as that defined in the CCMP Final Document developed for this estuary.

The table below provides basic information pertaining to the 96 basins that compose the current inland waters segmentation system.

Table 1: Basins for the Inland Waters Segmentation System

BASIN NAME	BASIN ID	BASIN SEQUENCE	BASIN SIZE (Miles)	REGION	SUB-BASINS
QUEBRADA DE LOS CEDROS	PRNQ1A	01	12.0	N	1
QUEBRADA DEL TORO	PRNQ2A	02	1.0	N	1
RIO GUAJATACA*	PRNR3A	03	38.0	N	4
QUEBRADA BELLACA	PRNQ4A	04	1.7	N	1
RIO CAMUY	PRNR5A	05	48.6	N	1
QUEBRADA SECA	PRNQ6A	06	2.0	N	1
RIO GRANDE DE ARECIBO*	PRNR7A	07	424.6	N	12
RIO GRANDE DE MANATI*	PRNR8A	08	234.6	N	11
RIO CIBUCO*	PRNR9A	09	144.6	N	6
RIO LA PLATA*	PRER10A	10	470.1	E	18
RIO HONDO	PRER11A	11	22.0	E	1
RIO BAYAMON*	PRER12A	12	185.0	E	5
SAN JUAN BAY ESTUARY SYSTEM*	PREE13A	13	**	E	3
RIO GRANDE DE LOIZA*	PRER14A	14	554.3	E	15
RIO HERRERA	PRER15A	15	17.0	E	1
RIO ESPIRITU SANTO*	PRER16A	16	58.4	E	2
RIO MAMEYES	PRER17A	17	38.9	E	2
QUEBRADA MATA DE PLATANO	PREQ18A	18	4.0	E	1
RIO SABANA	PRER19A	19	33.1	E	2
RIO JUAN MARTIN	PRER20A	20	7.8	E	1
QUEBRADA FAJARDO	PREQ21A	21	10.0	E	1
RIO FAJARDO*	PRER22A	22	59.0	E	1
RIO DEMAJAGUA	PRER23A	23	2.8	E	1
QUEBRADA CEIBA	PREQ24A	24	5.0	E	1
QUEBRADA AGUAS CLARAS	PREQ25A	25	4.8	E	1
RIO DAGUAO	PRER26A	26	13.8	E	1
QUEBRADA PALMA	PREQ27A	27	11.8	E	1
QUEBRADA BOTIJAS	PREQ28A	28	7.4	E	1
RIO SANTIAGO	PRER29A	29	15.3	E	2
RIO BLANCO	PRER30A	30	58.4	E	2
RIO ANTON RUIZ	PRER31A	31	20.4	E	2
QUEBRADA FRONTERA	PREQ32A	32	8.5	E	1
RIO HUMACAO*	PRER33A	33	55.8	E	1
RIO CANDELERO	PRER34A	34	10.4	E	1
RIO GUAYANES*	PRER35A	35	94.6	E	2
QUEBRADA EMAJAGUA	PREQ36A	36	2.5	E	1
RIO MAUNABO*	PRER37A	37	36.0	E	1

BASIN NAME	BASIN ID	BASIN SEQUENCE	BASIN SIZE (Miles)	REGION	SUB-BASINS
QUEBRADA MANGLILLO	PRSQ38A	38	1.0	S	1
QUEBRADA FLORIDA	PRSQ39A	39	3.0	S	1
RIO JACABOA	PRSR40A	40	13.0	S	1
QUEBRADA PALENQUE	PRSQ41A	41	1.0	S	1
RIO CHICO	PRSR42A	42	14.6	S	1
RIO GRANDE DE PATILLAS*	PRSR43A	43	48.6	S	4
QUEBRADA YAUREL	PRSQ44A	44	6.0	S	1
RIO NIGUAS – ARROYO	PRSR45A	45	21.0	S	1
QUEBRADA SALADA	PRSQ46A	46	1.7	S	1
QUEBRADA CORAZON	PRSQ47A	47	9.7	S	1
QUEBRADA BRANDERI	PRSQ48A	48	4.5	S	1
RIO GUAMANI	PRSR49A	49	22.0	S	1
QUEBRADA MELANIA	PRSQ50A	50	7.0	S	2
RIO SECO	PRSR51A	51	24.7	S	1
QUEBRADA AMOROS	PRSQ52A	52	0.7	S	1
QUEBRADA AGUAS VERDES	PRSQ53A	53	15.0	S	1
RIO NIGUAS – SALINAS	PRSR54A	54	102.5	S	1
RIO JUEYES	PRSR55A	55	11.0	S	1
RIO CAYURES	PRSR56A	56	5.0	S	1
RIO COAMO*	PRSR57A	57	115.7	S	3
RIO DESCALABRADO	PRSR58A	58	18.8	S	1
RIO CAÑAS	PRSR59A	59	8.0	S	1
RIO JACAGUAS	PRSR60A	60	89.5	S	4
RIO INABON	PRSR61A	61	66.7	S	1
RIO BUCANA – CERRILLOS*	PRSR62A	62	60.4	S	3
RIO PORTUGUES*	PRSR63A	63	54	S	1
RIO MATILDE – PASTILLO	PRSR64A	64	51.2	S	2
RIO TALLABOA	PRSR65A	65	59.6	S	1
RIO MACANA	PRSR66A	66	21.7	S	1
RIO GUAYANILLA*	PRSR67A	67	60.0	S	1
RIO YAUCO	PRSR68A	68	93.7	S	3
RIO LOCO	PRSR69A	69	113.4	S	3
RIO ARROYO CAJUL	PRSR70A	70	7.4	S	1
QUEBRADA BOQUERON	PRWQ71A	71	11.7	W	1
QUEBRADA ZUMBON	PRWQ72A	72	1.7	W	1
QUEBRADA GONZALEZ	PRWQ73A	73	1.8	W	1
QUEBRADA LOS PAJARITOS	PRWQ74A	74	2.7	W	1
CAÑO CONDE AVILA	PRWK75A	75	4.0	W	1
QUEBRADA IRIZARRY	PRWQ76A	76	2.0	W	1

BASIN NAME	BASIN ID	BASIN SEQUENCE	BASIN SIZE (Miles)	REGION	SUB-BASINS
RIO GUANAJIBO*	PRWR77A	77	324.6	W	9
CANO MERLE	PRWK78A	78	11.1	W	2
RIO YAGÜEZ*	PRWR79A	79	42.2	W	1
QUEBRADA DEL ORO	PRWQ80A	80	10.0	W	1
CAÑO MANI	PRWK81A	81	3.0	W	1
CAÑO BOQUILLA	PRWK82A	82	12.3	W	3
RIO GRANDE DE AÑASCO*	PRWR83A	83	488.6	W	10
QUEBRADA JUSTO	PRWQ84A	84	1.0	W	1
QUEBRADA ICACOS	PRWQ85A	85	1.4	W	1
QUEBRADA CAGUABO	PRWQ86A	86	1.0	W	1
CAÑO GARCIA	PRWK87A	87	2.0	W	1
QUEBRADA GRANDE DE CALVACHE	PRWQ88A	88	14.8	W	1
QUEBRADA LOS RAMOS	PRWQ89A	89	6.9	W	1
QUEBRADA PUNTA ENSENADA	PRWQ90A	90	5.0	W	1
QUEBRADA PILETAS	PRWQ91A	91	2.0	W	1
RIO GRANDE	PRWR92A	92	21.8	W	1
CAÑO DE SANTI PONCE	PRWK93A	93	4.8	W	1
RIO GUAYABO	PRWR94A	94	43.1	W	1
RIO CULEBRINAS*	PRWR95A	95	308.8	W	11
CAÑO CORAZONES	PRWK96A	96	1.3	W	1

* Basins with permanent monitoring stations

** The San Juan Bay Estuary System increased in size because it receives the total miles of five streams basins that contribute to the total drainage area of the estuary system. These water bodies were previously considered as separate basins.

Twenty-three (23) of the 96 basins are monitored routinely. These 23 basins form part of the permanent stream water quality monitoring network. For purposes of water quality assessment and planning, PREQB continues to group all the basins into four (4) geographic regions. The table 2 presents geographic regions with corresponding number of basins and basins part of the monitoring network.

Table 2: Geographic Regions

REGION	BASIN	BASIN IN PERMANENT STREAM WATER QUALITY NETWORK	ASSESSMENT UNITS BY EXTERNAL DATA
North	9	4	10
South	33	5	10
East	28*	9	22
West	26	4	8

* Included the San Juan Bay Estuary System

For assessment units with monitoring stations, the water quality assessment made with the data generated at each station is considered to be indicative of the water quality upstream along the whole unit until it reaches another. For unmonitored AU, supplementary information, such as: NPDES compliance evaluation inspections, operation and maintenance inspections, pump station by-passes and sanitary sewer system overflow incidents for a period of two years, implementation of BMPs by non-point sources, fish-kills or spill events that make possible identified potential pollution sources.

Figure 1: Inland Waters Assessment Units

1.2 Coastal Shoreline Segmentation System

The segmentation for the coastal shoreline it is divided in sixty-four (64) AU of which forty-four (44) are monitored (with monitoring stations) and twenty (20) AU are unmonitored (not assessed). Nevertheless, during the year 2013, the EQB completed the relocation process of the coastal stations with the purpose that the greater amount of AU are monitored. These changes will be reflected in the year 2014 and will be included in the next evaluation cycle 2016.

The table below summarize the ID of the AU, the size and the region location. The column of AU Description indicates where begins the AU and where it ends the same.

Table 3: Coastal Shoreline Segmentation

Assessment Unit (AU) ID	*AU Description*	*AU Size (miles)*	*Region*
PRNC01*	Punta Borinquén to Punta Sardina	11.72	North
PRNC02*	Punta Sardina to Punta Manglillo	14.10	North
PRNC03*	Punta Manglillo to Punta Morrillos	9.65	North
PRNC04*	Punta Morrillos to Punta Manatí	13.66	North
PRNC05*	Punta Manatí to Punta Chivato	7.46	North
PRNC06*	Punta Chivato to Punta Puerto Nuevo	3.23	North
PRNC07*	Punta Puerto Nuevo to Punta Cerro Gordo	5.05	North
PRNC08*	Punta Cerro Gordo to Punta Boca Juana	7.32	North
PREC09*	Punta Boca Juana to Punta Salinas	5.78	East
PREC10B*	Punta Salinas to Río Bayamón mouth	2.91	East
PREC10C	Río Bayamón mouth to Isla de Cabras	6.63	East
PREC11	Isla de Cabras to Punta del Morro	7.79	East
PREC12*	Punta del Morro to west side of Condado Bridge	3.50	East
PREC13*	East side of Condado Bridge to Punta Las Marias	4.31	East
PREC14*	Punta Las Marías to Punta Cangrejos	4.19	East
PREC15*	Punta Cangrejos to Punta Vacía Talega	6.23	East
PREC16*	Punta Vacía Talega to Punta Miquillo	9.46	East
PREC17*	Punta Miquillo to Punta La Bandera	8.41	East

Assessment Unit (AU) ID	*AU Description*	*AU Size (miles)*	*Region*
PREC18*	Punta La Bandera to Cabezas de San Juan	10.46	East
PREC19*	Cabezas de San Juan to Punta Barrancas	7.08	East
PREC20	Punta Barrancas to Punta Medio Mundo	5.33	East
PREC21	Punta Medio Mundo to Punta Puerca	3.00	East
PREC22	Punta Puerca to Isla Cabras	3.30	East
PREC23	Isla Cabras to Punta Cascajo	8.83	East
PREC24	Punta Cascajo to Punta Lima	9.07	East
PREC25*	Punta Lima to Morro de Humacao	9.83	East
PREC26	Morro de Humacao to Punta Candelero	1.84	East
PREC27	Punta Candelero to Punta Guayanés	3.74	East
PREC28C*	Punta Guayanés to Punta Quebrada Honda	4.68	East
PREC28B*	Punta Quebrada Honda to Punta Yeguas	.74	East
PREC29	Punta Yeguas to Punta Tuna	4.35	East
PREC30*	Punta Tuna to Cabo Mala Pascua	2.65	East
PRSC31	Cabo Mala Pascua to Punta Viento	4.06	South
PRSC32*	Punta Viento to Punta Figuras	6.16	South
PRSC33*	Punta Figuras to Punta Ola Grande	8.10	South
PRSC34*	Punta Ola Grande to Punta Petrona	40.96	South
PRSC35*	Punta Petrona to Punta de Cabullones	2.53	South
PRSC36B	Punta de Cabullones to Punta Carenero	6.70	South
PRSC36C*	Punta Carenero to Punta Cucharas	9.23	South
PRSC37B*	Punta Cuchara to Cayo Parguera	3.30	South
PRSC37C*	Cayo Parguera to Punta Guayanilla	4.20	South
PRSC38*	Punta Guayanilla to Punta Verraco	13.20	South
PRSC39*	Punta Verraco to Punta Ballenas	6.41	South
PRSC40*	Punta Ballenas to Punta Brea	13.26	South
PRSC41B1*	Punta Brea to Bahía Fosforescente La Parguera	10.93	South
PRSC41A1	Bahía Fosforescente La Parguera	2.00	South

Assessment Unit (AU) ID	*AU Description*	*AU Size (miles)*	*Region*
PRSC41B2*	Bahía Fosforescente to Punta Cueva de Ayala	7.00	South
PRSC41A2	Bahía Monsio José	3.72	South
PRSC41B3	Bahía Monsio José to Faro de Cabo Rojo	13.45	South
PRWC42	Faro de Cabo Rojo to Punta Águila	2.89	West
PRWC43*	Punta Águila to Punta Guaniquilla	9.54	West
PRWC44*	Punta Guaniquilla to Punta La Mela	2.50	West
PRWC45	Punta La Mela to Punta Carenero	2.95	West
PRWC46*	Punta Carenero to front of Cayo Ratones	4.00	West
PRWC47	In front of Cayo Ratones to Punta Guanajibo	3.85	West
PRWC48*	Punta Guanajibo to Punta Algarrobo	5.60	West
PRWC49*	Punta Algarrobo to Punta Cadena	6.98	West
PRWC50*	Punta Cadena to Punta Higüero	4.98	West
PRWC51*	Punta Higüero to Punta del Boquerón	6.14	West
PRWC52*	Punta del Boquerón to Punta Borinquén	6.80	West
PRCC53*	Culebra Island	32.70	Offshore Islands
PRVC54A	Bahía Mosquito	3.00	Offshore Islands
PRVC54B*	Vieques Island	67.60	Offshore Islands
PRMC55	Mona Island	18.60	Offshore Islands

* Assessment Units with monitoring stations

Figure 2: PR Coastal Shoreline Segmentation System

2.0 Monitoring Program

2.1 Permanent Water Quality Monitoring Network

The PREQB monitoring activities for this reporting cycle included routine ambient water quality sampling at the various networks and special water quality studies performed in the water bodies of concern. Also, where available, effluent quality data from the discharge monitoring reports submitted by NPDES permitted point sources are use as contributing sources that may impact the use support potential of the water bodies. In addition, PREQB may perform special sampling activities whenever necessary to investigate fish kills, hydrocarbons leaks and spills, and illegal discharges to storm sewers and water bodies in order to obtain water quality data to assess the impact.

In this cycle the PREQB generates data from five (5) routine monitoring networks unlike the 2012 cycle. This will provide physical, chemical and biological water quality data from the different water bodies. Analytical results related to the metals are not possible to EQB sampling networks due to problems with the equipment designated for this. However, EQB in coordination with the EPA have been working on this issue and they expect to be begin to generate analytical results of metals at the end of the federal fiscal year 2014. These are:

- ***Surface Water Monitoring Network:*** Operated by the USGS under a cooperative agreement with Puerto Rico, this network includes water quality-sampling stations in the 22 major river basins in the north, south, east, and west hydrographic regions of Puerto Rico. The Nonpoint Monitoring Network was included as part of this Network. The USGS collects samples on a quarterly basis and analyzes for the following parameters:

Flow *	Fecal Coliforms
Specific Conductance *	Ammonia as Nitrogen
Temperature	Nitrate + Nitrite as Nitrogen
Dissolved Oxygen	Suspended Solids *
Turbidity	Chemical Oxygen Demand *
pH	Total Phosphorus
Hardness	

* Parameter that does not have numeric standard as establish in the Puerto Rico Water Standard Regulation (PRWQSR)

Analyses for the detection of free cyanide and methylene blue active substances (MBAS), as well as the other following parameters, are performed twice a year:

Arsenic	Mercury	Iron *
Cadmium	Selenium	Zinc
Lead	Silver	Copper

* Parameter that does not have numeric standard as establish in the PRWQSR

Additional samples are collected for dissolved solids, as calcium and magnesium and once a year are collected samples for pesticides.

- ***Clean Lakes Monitoring Network:*** Operated by PREQB, this network monitors water quality in the 19 major lakes (reservoirs) that are mostly used as raw sources of drinking water and recreational activities, including fishing. Samples taken at these lakes are analyzed for the following parameters:

Ammonia as Nitrogen	Dissolved Oxygen (profile)
Chlorophyll "a" *	Mercury
Fecal Coliforms	Total Phosphorous
Hardness	Turbidity
Nitrate + Nitrite	Pesticides (organochlorides)
pH	Temperature (profile)

* Parameter that does not have numeric standard as establish in the PRWQSR

All parameters will be collected once in each of three (3) sampling cycles (rainy season, dry season, and midpoint between these two periods).

- ***Groundwater Monitoring Network:*** This network is limited to approximately 54 drinking water wells located in different municipalities throughout Puerto Rico and are sampled at least one time per year, sampling once for each of the following:

Fecal Coliforms	Orthophosphate
Total Coliforms	pH
Total dissolved solids	Pesticides
Temperature	Conductivity

- ***Coastal Monitoring Network:*** Operated by PREQB, this network includes monitoring stations all around the coastal perimeter of Puerto Rico. The Coastal Monitoring Network Stations are sampled for the following parameters:

Fecal Coliforms	Ammonia
Enterococcus	Oil and Grease
pH	Dissolved Oxygen
Temperature	Salinity
Turbidity	None

Those monitoring stations (Table 4) are sampled in accordance with the following frequency: 22 stations monthly, 10 stations annually, and 66 stations bimonthly frequency.

Table 4: Puerto Rico Coastal Permanent Network Water Quality Monitoring Stations

STATION ID	*FREQUENCY OF MONITORING*
MAC-043	6/BT, 1/PCM
SBZ-002	6/BT
SBZ-003	6/BT
SBZ-004	6/BT, 1/PCM
SBZ-005	6/BT
MAC-044	6/BT
MAC-086	1/BTPCM
SBZ-006	6/BT
MAC-047	6/BTPC, 1/M
SBZ-007	6/BT
MAC-049	1/BTPCM
SBZ-008	6/BT
SBZ-009	6/BT
MAC-055	6/BTPC, 1/M
SBZ-010	6/BT
MAC-087	6/BT, 1/PCM
MAC-088	6/BT, 1/PCM
SZB-013	6/BT
SBZ-014	6/BT
MAC-061	6/BTPC, 1/M
MAC-077	6/BTPC, 1/M
SBZ-016	6/BT
MAC-063	6/BTPC, 1/M
SBZ-019	6/BT
SBZ-018	6/BT
MAC-072	12BT, 1PCM

STATION ID	*FREQUENCY OF MONITORING*
MAC-071	12BT, 1PCM
MAC-070	12BT, 1PCM
B-1	12BT, 1PCM
MAC-074	12BT, 1PCM
EB-04	12BT
MAC-075	12BT, 1PCM
EB-14	12BT
EB-17	12BT
MAC-076	12BT, 1PCM
EB-23	12BT
EB-29	12BT
EB-31	12BT
003C	12BT, 1PCM
EB-35	12BT
EB-38	12BT
B-2	12BT, 1PCM
EB-40	12BT
EB-41	12BT
EB-42	12BT
004C	12BT, 1PCM
B-3	12BT, 1PCM
SBZ-024	6/BT
SBZ-025	6/BT
SBZ-026	6/BT
SBZ-027	6/BT
SBZ-028	6/BT
SBZ-030	6/BT
MAC-009	6/BT, 1/PCM
MAC-010	6/BTPC, 1/M
MAC-078	6/BTPC, O&G, 1/M
MAC-079	6/BTPC, 1/M
MAC-080	6/BTPC, 1/M
SBZ-033	6/BT
SBZ-034	6/BT
MAC-081	6/BTPC, 1/M
MAC-011	1/BTPCM
MAC-012	6/BTPC, 1/M
MAC-013	6/BTPC, O&G, 1/M
SBZ-037	6/BT
SBZ-038	6/BT

STATION ID	*FREQUENCY OF MONITORING*
MAC-082	6/BTPC, 1/M
SBZ-040	6/BT
MAC-083	6/BT, 1/PCM
MAC-017	6/BTPC, 1/M
MAC-016	1/BTPCM, O&G
MAC-018	1/BTPCM
MAC-019	6/BTPC, 1/M
SBZ-042	6BT
MAC-020	6/BTPC, 1/M
MAC-022	6/BTPC, O&G, 1/M
MAC-023	6/BTPC, 1/M
MAC-084	6/BT, 1/PCM
MAC-024	1/BTPCM, O&G
MAC-025	1/BTPCM, O&G
MAC-027	1/BTPCM
MAC-089	1/BTPCM
MAC-028	6/BTPC, 1/M
MAC-030	1/BTPCM
MAC-085	6/BT, 1/PCM
MAC-034	1/BTPCM
SBZ-045	6/BT
SBZ-046	6BT
SBZ-047	6BT
SBZ-048	6BT
MAC-037	6BT, 1/PCM
SBZ-050	6BT
SBZ-051	6BT
SBZ-052	6BT
MAC-038	6/BTPC, 1/M
MAC-040	6/BTPC, O&G,1/M
MAC-041	6/BT, 1/PCM
SBZ-054	6BT
SBZ-055	6BT

B – Microbiology analysis (Fecal Coliforms and Enterococcus)
T – Temperature (in the field)
PC – Physical and Chemicals Parameters: Salinity, pH, Dissolved Oxygen, Turbidity, NO_2 + NO3, NH_3 and O&G (Oil & Grease)
M – Metals

- ***Beach Monitoring and Notification Program Network***: Operated by PREQB, this network includes 34 stations distributed over 23 beaches in Puerto Rico. The Beach Monitoring

and Notification Program network stations are sampled biweekly for bacteria (Fecal Coliforms, Enterococcus and Temperature).

All sampling and analytical activities are subjected to a Water Quality Assurance Program Plan, coordinated through the Quality Assurance Control Officer of the Water Quality Area and the Division of Environmental Science and Assessment of EPA Region II.

Each monitoring initiative is supported by the corresponding Quality Assurance Project Plan (QAPP), which must comply with the Water Program's Quality Assurance Management Plan (QAMP).

All samples are collected, preserved, transported and analyzed in accordance with the protocols established in the corresponding Quality Assurance Project Plan. The purpose and goals of PREQB's fixed monitoring station programs are:

1. Provide current data on the quality of the various water bodies throughout Puerto Rico.
2. Provide information on specific pollutants of concern and uses that may be impaired in the different water bodies monitored
3. Provide information on possible sources responsible for water quality impairment.
4. Provide information to determine the compliance with the water quality standards applicable to the different designated uses as established in the PRWQSR.
5. Determine if the pollution control measures being implemented throughout Puerto Rico are effective in protecting the quality of the different water bodies.

Data generated from the rivers and stream stations sampled and analyzed by the USGS are not available through STORET; however, the data is available through Internet (www.usgs.gov) or hardcopy files from the Caribbean Field Office.

2.2 Special Monitoring Projects

Delisting Project

The PREQB in cooperation with the USGS is conducting a water quality sampling program to assess the water quality at selected stream sites throughout Puerto Rico. The sampling program will be conducted until September 2015. These streams are water bodies that were included in the 303(d) List due to monitoring through synoptic studies.

Not having a permanent monitoring station these water bodies have remained on the 303(d) List for several cycles. If, a previously listed parameter complied fully with the applicable water quality standard, that specific parameter will be delisted in the next two cycle as established in the 303(d) List – Delisting Criteria section of this Assessment Methodology.

Class SA, SE Waters and Coastal Lagoons Monitoring

To address the unmonitored waters including, quality of high ecological value or recreational, Class SA waters as defined in the PRWQSR, that includes bioluminescent lagoons and bays such as La Parguera and Monsio José on the Southern Coast, and Bahía Mosquito in Vieques municipality, PREQB in coordination with USGS has developed a water quality sampling program for the assessment of 20 coastal lagoons in the main island of Puerto Rico and one in the island of Vieques. The main objectives is to assess the general water quality of the selected lagoons and establish a data base that will be used to evaluate natural and human pollution – induced effects. Also the assessment will determine the occurrence and distribution of a suite inorganic and organics contaminant and bacteria in the surfaces water of the selected coastal lagoons throughout Puerto Rico. Approximately, 40 surface water sampling sites were visited quarterly during one year (FY 2011-12) and samples were collected within these coastal lagoons, including Class SE water bodies: Tortuguero and Cartagena lagoons. The water samples were analyzed for chemical physical and bacteriological parameters, which will help to provide the necessary tools to assess water quality of these lagoons.

In addition, the PREQB requested data from the study conducted with the Vieques Conservation Historical Trust and the USGS. Due to Bahía Mosquito is classified as SA waters, the data only considered as reference in order to assist the EQB to know the conditions of that waters. The parameters analyzed from one monitoring station were the following: Dissolved Oxygen, pH, Salinity, Specific Conductance, Temperature, and Turbidity. Data set cover the period from November 21, 2011 to December, 2012.

2.3 Water's Quality External Data

In developing Section 303(d) lists, PREQB is required to assemble and evaluate all existing and readily available water quality-related data and information, including, at a minimum, consideration of existing and readily available data and information for which water quality problems have been reported by governmental agencies, members of the public or academic institutions. In addition to these categories, Puerto Rico is required to evaluate and consider any other readily available data and information. The list of sources PREQB has actively solicited data from includes government agencies and academic institutions these can be found in the Table 5 below. PREQB requested recent (three years or less) chemical and biological data on water bodies along with information pertaining to the quality control procedure and protocols that were used to generate the data.

As part of the collection of water quality data from external / secondary sources, PREQB requests to government agencies (state and federal), universities and other entities the QA / QC data. However, most of the time, these agencies, institutions and organizations provide the water quality data but not the QA/QC protocols. Nevertheless, it is important to note that there are government agencies and entities with QAPPs approved by EPA, so they validate the data according to the protocols previously approved by EPA. Similarly, the QMP of the Water Quality

Area and Evaluation and Strategic Planning Area (approved by EPA in June 2012) states that: "all data (field or laboratory) received from the USGS is already validated by the USGS in accordance with internal IUSGS protocols". These data are used as delivered to PREQB by the USGS without subsequent validation by PREQB.

PREQB incorporate the explanation of whether or not the information submitted by government agencies, universities or other entities was used and the criteria for choosing to use the information. In addition, in all cases where no QA/QC data is available for PREQB verification the following disclaimer is stated: "PREQB does not know the quality requirements of the sampling and analysis of the water quality data submitted to the agency, thus the quality of the secondary data is unknown".

Table 5: Government Agencies and Academic Institutions contacted by EQB

NAME	POSITION	AGENCY
Eng. Santiago Domenech	Chairman	Associated General Contractors of America Puerto Rico Chapter
Irma Lopez	Compliance Manager Drinking Water Compliance and Control Division	PR Aqueduct and Sewer Authority
Eng. Carmen Gloria Alicea	Environmental Studies and Programming Area Sub Director	PR Highway and Transportation Authority
Eng. Carmen Ana Morales	Environmental Studies Office Acting Chief	PR Highway and Transportation Authority
Maria Oquendo	Planning Engineering and Operation Division Director	Solid Waste Management Authority
Ruberto Berrios	Water Quality Department Manager	PR Electric Power Authority
Milagros Rodríguez	Environmental Affair Office Manager	PR Ports Authority
Damaris Delgado	Acting Director	Jobos Bay National Estuarine Reserve
Eng. Angel L. González Carrasquillo	Chairman	College of Engineers and Land Surveyors of PR
Edwin Hernández	Land Preservation Office	Department of Agriculture
Raúl Santini	Coordinator Coastal Zone Division	Department of Natural and Environmental Resources
Ernesto L. Díaz	Director Coastal Zone Program	Department of Natural and Environmental Resources
John Kushwara	Assessment, Monitoring and Environmental Science Division	US Environmental Protection Agency
Dr. Jorge Bauzá	Environmental Scientific	San Juan Estuary Bay
Rafael Morales Martinez	Flood Unit Coordinator	PR Planning Board

NAME	POSITION	AGENCY
Wilfredo Mass	Flood Unit Planning Analyst	PR Planning Board
Rose Ortiz	Coastal Zone Division Planning Analyst	PR Planning Board
Erick Hawk	Section 7 Coordinator Southeast Regional Office	National Marine Fisheries Services
Janet Gautier	Chairman	PR Water & Environmental Association
María Ruiz De La Cruz	Science College Director	Pontifical Catholic University of Puerto Rico
Jackeline Rosas Negrón	Science College Director, Mayagüez Campus	Pontifical Catholic University of Puerto Rico
Dra. Sandra Molina	Biology Department Director	Pontifical Catholic University of Puerto Rico
Dr. Carlos Lugo	Environmental Sciences Program Coordinator	Pontifical Catholic University of Puerto Rico
Dra. Graciela I. Ramírez Toro	Director of CECIA	Interamerican University of PR
Dr. Skip Van Bloem	Department of Agro-environmental Sciences Director	University of PR – Mayagüez Campus
Dr. John Kubaryk	Acting Director Department of Marine Sciences	University of PR – Mayagüez Campus
Dr. Luis R. Pérez Alegría	Professor Department of Agricultural and Bio-Systems Engineering	University of PR–Mayagüez Campus
Dr. Jorge Rivera Santos	Director Water Resources Institute	University of PR––Mayagüez Campus
Ruperto Chaparro	Director Sea Grant College Program	University of PR – Mayagüez Campus
Dra. Ana Navarro	Water Quality - Marine Outreach Program - Sea Grant College Program	University of PR– Mayaguez Campus
Gloriselle Negrón Ríos	Associate Professor in Environmental Health	Agriculture Extension Services
Eric A. Irizarry Otaño	Agricultural Engineer - Engineering Office	Agriculture Extension Services
Edwin Almodóvar	Director	Natural Resources Conservation Service (NRCS) Caribbean Area
Damaris Medina	Engineer	Natural Resources Conservation Service (NRCS) Caribbean Area
Marisol Morales	Biologist	Natural Resources Conservation Service (NRCS) Caribbean Area

NAME	POSITION	AGENCY
Marelisa Rivera	Supervisor PR Field Office	US Fish and Wildlife Service
Teresa Lipsett	School of Science and Technology Dean	Turabo University
Dr. Carlos M. Padín Bibiloni	Dean - School of Environmental Affairs	Metropolitan University of PR
María Ortiz Rivera	Associate Dean School of Environmental Affairs	Metropolitan University of PR
Ing. José Borrageros	Director - Department of Civil and Environmental Engineering	Polytechnic University of PR
Dr. Thomas Miller	Department of Geology	University of PR– Mayagüez Campus
Dr. Luis A. Ríos Hernández	Assistant Professor Biology Department	University of PR– Mayagüez Campus
Dr. Sangchul Hwang	Associated Professor Department of Civil Engineering and Surveying	University of PR– Mayagüez Campus
Dra. Ingrid Padilla	Associated Professor Department of Civil Engineering and Surveying	University of PR– Mayagüez Campus
Olga M. Ramos	GIS Analyst and Remote Sensing Lab	International Institute of Tropical Forestry Jardín Botánico Sur
Miyoko Sakashita	Senior Attorney	Center of Biological Diversity
Lirio Márquez D'Acunti	Executive Director	Vieques Conservation and Historical Trust
Mark Martin Bras	Director Community Affairs	Vieques Conservation and Historical Trust
María Del Río	Technology and Sciences Professor	Metropolitan University of PR
Dr. Gabriel Infante	Technology and Sciences Professor	Metropolitan University of PR
Roberto Viqueira	Executive Director	Protectores de Cuencas, Inc.
Deborah Rivera	Director - Environmental Affairs Department	Autonomous Municipality of Carolina
Patricia Bradley	Marine Biology	Environmental Protection Agency
Eng. José Font	Director Caribbean Environmental Protection Division	Environmental Protection Agency
Douglas A. Pabst	Supervisory Physical Scientist	Environmental Protection Agency New York
Dr. Edwin Hernández-Delgado	Affiliate Researcher	University of Puerto Rico
James Kurtenbach	USEPA, Region II	USEPA, Region II

As result of the water quality data request, the following agencies and/or institutions responded and submitted data:

1. Mrs. Yazmin Laguer-EPA CEPD
    a. DMR data (from the past two years)
2. Mrs. Miyoko Sacashita, Esq., Senior Attorney, Center Biological Diversity, San Francisco, CA
    a. No water quality data will be included.
    b. The recommendations are related to include as category 5 all coastal waters due to dissolved carbon dioxide.
    c. PREQB held search data, belonging to the coastal waters of Puerto Rico, in the websites recommended by the CBD in order to obtain the greatest amount of scientific information that is available.
    d. Include the following internet web pages references;
        i. PMEL NOAA http://www.pmel.noaa.gov/
        ii. National Ocean Data Center http://nodc.noaa.gov/
        iii. Integrated Ocean Data Center http://www.ioos.noaa.gov/

    The details of data obtained are discussed in the section *Water Quality External Data- Access Online* of this document.
3. San Juan Bay Estuary System Program
    a. The monitoring network consists of 26 monitoring stations in the San Juan Bay Estuary System. (See Figure 3)
    b. Parameters analyzed: Temperature, Dissolved Oxygen, Specific Conductance, Salinity, Turbidity, pH, Secchi disk, Oil and Grease, Total Kjeldahl Nitrogen, Nitrate + Nitrite (as N), Total Phosphorus, TOC, Chlorophyll "a", TSS, Turbidity, Ammonia, BOD, Fecal Coliform and Fecal Enterococcus.
    c. The San Juan Bay Estuary System Program has an approved Quality Assurance Project Plan by EPA.
4. NOAA - Bahía de Jobos
    a. The data was obtained of the following site hosted by NOAA: National Estuarine Research Reserve System, Centralized Data Management Office http://cdmo.baruch.sc.edu/.
    b. Monitoring network consist of 4 monitoring stations (See Figure 4).
    c. Parameters analyzed: Temperature, pH, salinity, Dissolved Oxygen and Turbidity.
    d. Disclaimer: PREQB does not know the quality requirements of the sampling and analysis of the water quality data submitted to the agency, thus the quality of the secondary data is unknown.
5. Mr. Ariel Lugo, Director USDA Forest Service, International Institute of Tropical Forestry
    a. It established eight (8) monitoring stations. (See Figure 5)
    b. Chemical and physical monitoring ions in Río Piedras basin- The objective is to evaluate the long-term dynamics of the chemistry of the basin in relation to anthropogenic changes (changes in the population) and natural changes (storms).

   c. Parameters analyzed: temperature, conductivity, pH, Cl, SO4, NO3, Na, K, Mg, Ca and Fl.

6. Best Management Practices to Reduces Soil Erosion and Sediment Export to the Fajardo Watershed; Luis R. Pérez Alegría, University of Puerto Rico, December 29, 2011
   a. Conducted under a contract between DRNE and the University of Puerto Rico, Agricultural Experiment Station (AES).
   b. Samples are collected, processes, stored and processed for analytical analysis of nitrogen species, total phosphorous and suspended sediment. (June, August and September 2011).
   c. EQB already have the most recent information for this sub watershed, in as much as this water body has a permanent monitoring station.
   d. Information pertaining to the quality control procedure and protocols that were used to generate the data is also requested, but not were provided.
7. Mr. David Whithall, PhD., Coastal & Oceanographic Assessment, Status and Trends (COAST), Center for Coastal Monitoring and Assessment, National Centers for Coastal Ocean Science, National Ocean Service, National Oceanic Atmospheric Administration (NOAA) and the University of Puerto Rico, Mayagüez Campus
   a. The study was conducted with twenty three (23) monitoring stations; three (3) were located in different areas of the Río Loco Basin and the others twenty (20) were located in coastal areas of Guánica Bay. (Figure 6). The received data are for the years 2009, 2010, 2011 and 2012.
   b. Nutrients were analyzed in surface water and sediment in the basin of the Guánica Bay. The parameters analyzed were: NO_3, $HPO_4^{=}$, SIO_2, NH_4^+, NO_2^-, Urea, NO_3^- $+NO_2^-$, Total N, and Total P.
   c. PREQB has standards for $NO_3^-+NO_2^-$, Total P with applicability for lakes and rivers. Therefore, the water quality data from the three (3) stations located within the Río Loco Basin will be used in the IR 2014.
   d. The data from the stations located in the Guánica Bay will not be used in the IR 2014 because the PREQB does not have an applicable water quality standard for coastal waters for the parameters analyzed.
   e. Disclaimer: PREQB does not know the quality requirements of the sampling and analysis of the water quality data submitted to the agency, thus the quality of the secondary data is unknown.
8. Mr. David Whithall, Ph.D., Coastal & Oceanographic Assessment, Status and Trends (COAST), Center for Coastal Monitoring and Assessment, National Centers for Coastal Ocean Science, NOAA
   a. Spreadsheet data from 1992 to 2010 includes data of Vieques, Jobos and the southwestern part of Puerto Rico.
   b. The matrix utilized in the research were coral tissue, sediments, oyster and water.
   c. Only the data from the period 2005, 2007 and 2008 were analyzed in water samples.
   d. The parameters analyzed in water samples were the following: Total P, Total N, $NO3^-$ $+NO_2^-$, hydrogen silicate, surface ammonium, surface $NO3^-$ and NO_2, surface orthophosphate and urea.

e. The data from the stations will not be used in the IR 2014, because the PREQB does not have an applicable water quality standard for coastal waters for the parameters analyzed.

9. Mr. José Rodríguez, USGS - PR (See Figures 7 and 8)
   a. Study of the Groundwater Quality Monitoring Program for the North Coast Limestone Aquifer System, the South Coast Aquifer, alluvial valleys of the southeast, southwest, and Isla of Vieques, Puerto Rico. The main objective is to continue monitoring the groundwater quality data at selected area of Puerto Rico, which began in 2011, to detect potential trends of chemical characteristics, because The USGS with available information indicates increasing trends of dissolved solids concentrations in groundwater from areas of the North Coast Limestone Aquifer System and the South Coast aquifer. In some areas dissolved solids concentrations are above the secondary maximum contaminant level (SMCL) for drinking water established by the United States Environmental Protection Agency.
   b. Other objective of the study is to help government agencies planners and managers and the general public to make informed decisions about the use of groundwater from these aquifers.
   c. The tables 6, 7 and 8 summarizes the water quality data generated as part of the study.
   d. The Water Quality Management Plan revised in October 2011 indicated the following, related to the data received from the USGS: All data (field and laboratory) received from the USGS is already validated by the USGS in accordance with internal USGS protocols. These data are used as delivered to PREQB by the USGS without subsequent validation by PREQB.

Table 6: Groundwater Quality monitoring Program for the North Coast Limestone Aquifer System, and South Coast Aquifer

Analysis	Number of samples	Aquifer
Major ions and bromide	55	North Coast, South Coast, alluvial valleys of the southwest, and Isla de Vieques
Nutrients	29	North Coast, South Coast, alluvial valleys of the southwest, and Isla de Vieques
Trace metals	10	South Coast and Isla de Vieques
Pesticides	6	South Coast
Volatile Organic Compounds (VOCs)	4	Isla de Vieques
H-2/H-1 and O-18/O-16 isotopes	50	North Coast, South Coast, alluvial valleys of the southwest, and Isla de Vieques

Table 7: Sampled well located along the south coast of Puerto Rico

Wells	USGS site identification	Depth well (feet)	Municipality	Aquifer
PRASA Estación M2	175853066543300	n/a	Guánica	Guánica Alluvial
PRASA Guánica Viejo	175857066541200	114	Guánica	Guánica Alluvial
Cesani 1	180035066502900	n/a	Yauco	Yauco Alluvial
Sugar Mill 2	180042066474500	n/a	Guayanilla	Guayanilla Alluvial
Hilton	175839066361500	n/a	Ponce	South Coast
Hac. Santa Cruz	175835066353900	192	Ponce	South Coast
Restaurada 2	175948066351500	n/a	Ponce	South Coast
Platanal	175947066343200	n/a	Ponce	South Coast
Bocachica Dom	175923066314300	120	Juana Díaz	South Coast
Serrano	175956066304500	n/a	Juana Díaz	South Coast
PRASA Sol y Mar	175958066295200	n/a	Juana Díaz	South Coast
Hotel Marbella	175941066275100	n/a	Juana Díaz	South Coast
Bizarreta Dom	175952066272800	n/a	Juana Diaz	South Coast
Máquina	175931066264300	n/a	Juana Díaz	South Coast
Alturas 1	180007066245500	n/a	Santa Isabel	South Coast
Corp. Azucarera 3	175848066253100	n/a	Santa Isabel	South Coast
Aguacatito	175839066253900	160	Santa Isabel	South Coast
Bernard	175758066242700	193	Santa Isabel	South Coast
Reliant 2	175748066234200	n/a	Santa Isabel	South Coast
Calabreñas 6	175825066233900	216	Santa Isabel	South Coast
Alomar Oeste	175734066233300	70	Santa Isabel	South Coast
Destino 1A	175857066223500	n/a	Santa Isabel	South Coast
Texidor 3	175848066213300	n/a	Santa Isabel	South Coast
PRASA Margarita	175826066180600	n/a	Salinas	South Coast
PRASA Salinas 1	175851066174600	120	Salinas	South Coast
Ermitaño Central	175708066163000	115	Salinas	South Coast
Ermitaño South	175708066163002	220	Salinas	South Coast
Salich 1	175748066160400	162	Salinas	South Coast
PRASA Las Mareas	175738066155400	n/a	Salinas	South Coast
JBNERR West 1	175721066151400	87	Salinas	South Coast
Aguirre 3	175804066150700	150	Salinas	South Coast
JBNERR East 1	175711066143600	74	Salinas	South Coast
PRASA AEE	175828066142200	n/a	Salinas	South Coast
PRASA Perpetuo	175822066134800	118	Salinas	South Coast
PRASA Coquí 3	175820066133500	n/a	Salinas	South Coast
Aguirre-Coquí	175812066133200	150	Salinas	South Coast
Hormigonera Bruja	175755066105000	85	Guayama	South Coast
PRASA Hac. Guamaní	175747066101000	n/a	Guayama	South Coast
Pioneer Barrancas	175740066073200	n/a	Guayama	South Coast
Phillips 13	175719066085500	99	Guayama	South Coast
PRASA Palmas Oeste 1	175832066031300	120	Arroyo	South Coast
PRASA Guilarte 1	175832066022000	n/a	Arroyo	South Coast

Table 8: Sampled wells located along the north coast of Puerto Rico

Wells	USGS site identification	Depth well (feet)	Municipality	Aquifer
Toledo	182635066471900		Hatillo	North Coast Limestone-Upper
Land Designs	182704066413000	125	Arecibo	Rio Grande de Arecibo Alluvial
PRASA Santana 2	182629066384800	200	Arecibo	North Coast Limestone-Upper
Zanja Fría	182724066392000	n/a	Arecibo	North Coast Limestone-Upper
Mena	182743066342600	n/a	Barceloneta	North Coast Limestone-Upper
Pollera Ochoa	182641066345700	350	Barceloneta	North Coast Limestone-Upper
PRASA Fortuna	182647066330800	300	Barceloneta	North Coast Limestone-Upper
PRASA Viskase	182537066331700	n/a	Barceloneta	North Coast Limestone-Upper
Ojo de Guillo	182541066313500	n/a	Barceloneta	North Coast Limestone-Upper
Nelson Cubano	182712066303400	100	Manatí	North Coast Limestone-Upper
Coto Sur 7	182548066265700	n/a	Manatí	North Coast Limestone-Upper
PRASA Ciudad Real	182700066250400	n/a	Vega Baja	North Coast Limestone-Upper
PRASA Vega Baja 2	182652066241500	120	Vega Baja	North Coast Limestone-Upper
Molino Rojo	182758066251700	20	Vega Baja	North Coast Limestone-Upper
Ojo de Agua	182657066250600	n/a	Vega Baja	North Coast Limestone-Upper
PRASA Sabana Hoyos 2	182712066203700	100	Vega Alta	North Coast Limestone-Upper
Cerro Gordo Nursery	182753066204000	n/a	Vega Alta	North Coast Limestone-Upper
PRASA Maguayo 6	182614066164800	n/a	Dorado	North Coast Limestone-Upper
Arenas	182653066190200	220	Vega Alta	North Coast Limestone-Upper
San Carlos	182630066172800	n/a	Dorado	North Coast Limestone-Upper
San Antonio 2	182707066164100	86	Dorado	North Coast Limestone-Upper

10. Puerto Rico Aqueduct and Sewer Authority (PRASA)
    a. Results from sampling events conducted by PRASA in the years 2011 y 2012 to several wells belonging to the Groundwater Network of the EQB.
        i. Parameters analyzed were: E. coli, Total Coliforms, aerobic endospore, temperature and pH.
        ii. The data of Total Coliform, Temperature and pH will be used in the IR 2014.
        iii. The E. coli and aerobic endospore data will not be used for the IR 2014 because the EQB has not an applicable water quality standard.
    b. Disclaimer: PREQB does not know the quality requirements of the sampling and analysis of the water quality data submitted to the agency, thus the quality of the secondary data is unknown.
11. Mr. Rafael Marrero Carrasquillo, Head, Environmental Protection and Quality Assurance Division, Puerto Rico Power Electric Authority (PREPA)
    a. Aguirre Power Plant – "*Acute and Chronic Definitive Bioassay using Mysid Shrimp (Mysidopsis bahia), Sheepshead Minnow (Cyprinodont variegatus) and Sea Urchin (Arbacia punctualata)*". (2011).

i. Applied Sciences laboratory conducted acute and chronic definitive test for Puerto Rico Electric Power Authority. Samples were collected and tested from a total of four different outfalls of the facility. The test were conducted from November 15 through 22, 2011.
ii. The samples analyzed were collected from the effluents of the facility and are not representative of the conditions of the coastal area, therefore the evaluated information will not be used in the IR 2014.

b. Costa Sur Power Plant- "*Comprehensive Biological Sampling-Spring Sampling"*
   i. The objective of the study was observe the population of the fish species in the area.
   ii. The winter survey was performed between February 26 and March 8, 2009.
   iii. Parameters analyzed; dissolved oxygen, pH, and salinity.
   iv. EQB already have the most recent information for the corresponded assessment unit (PRSC37C), in as much this segment has two permanent monitoring station.
   v. Information pertaining to the quality control procedure and protocols that were used to generate the data is also requested, but not were provided.

c. Costa Sur Power Plant-*"Aquatic Habitat Study for the Possible North Offshore Submerge Discharge (OSD) Rout, Seasonal Aquatic Community Study on the North and South Offshore submerged discharge (OSD) Route and Acropora Coral Survey in Eastern Guayanilla Bay* (2009).
   i. The objective of the investigation is to collect data within Costa Sur and along the North OSD route. Coastal and marine habitats near Costa Sur and within Guayanilla Bay were surveyed and characterized including the following method: adult fish traps; beach seine tows; mangrove root survey and hydrologic measure of all fish trap station. Furthermore Acropora Survey is performed to identify the presence of two endangered species of coral (Elkhorn and staghorn coral) or any habitat critical to those coral species in eastern Guayanilla Bay.
   ii. Parameter analyzed; temperature, salinity, dissolved oxygen (DO) and pH.
   iii. The samplings were conducted during July to October 2009.
   iv. EQB already have the most recent information for the corresponding assessment unit (PRSC37C), in as much as this segment has two permanent monitoring station.
   v. Information pertaining to the quality control procedure and protocols that were used to generate the data is also requested, but not were provided.

d. Palo Seco Power Plant- *"Acute and Chronic Definitive Biassays Using Mysid Shrimp (Mysidopsis bahia) and Sheepshead Minnow (Cyprinodon variegatus)"*
   i. Applied Sciences Laboratory conducted acute and chronic definitive test for Puerto Rico Electric Power Authority.
   ii. The objective of the study was measuring survival, fecundity and growth of M. bahia and C. variegatus in the laboratory test.

iii. The samples analyzed were collected from the effluents of the facility and are not representative of the conditions of the coastal area, therefore the evaluated information will not be used in the IR 2014.

e. Costa Sur Power Plant – *"Technologies and Operational Measures to Reduce Entrainment and Impingement Mortality Action Plan"* (June 2012)

i. The objective of the report is examines six technologies or operational measures to achieve the following performance standards: Impingement Mortality Performance Standard; Entrainment Performance Standard and The calculation baseline shall be the level of entrainment or impingement mortality that would occur in a 1130 MW, 871 MGD.

ii. The data show in the study (temperature data) are from the discharge of the facility and are not representative of the conditions of the coastal area, therefore the evaluated information will not be used in IR 2014.

12. Mr. Edwin Hernández-Delgado, Ph.D., University of Puerto Rico, Center for Applied Tropical Ecology and Conservation.

a. *Impacts of Non-Point Source Sewage Pollution in Coastal Marine Communities of the Southwestern Puerto Rico shelf"* (2006).

i. The study was aimed at addressing major water physical variables across a suspected water quality gradient associated to non-point source sewage pollution along the southwestern Puerto Rico shelf.

ii. The samples were collected during the period of June 2005 to June 2006.

iii. Due the coastal area of PR is divided into segments identified as assessment units, it is necessary to know the exact points of sampling (coordinates) to relate the data to the corresponding segment and determine compliance with the water quality standards of each assessment unit. The study does not indicate clearly the exact points of sampling which could not relate data to the assessment unit that represent.

iv. Information pertaining to the quality control procedure and protocols that were used to generate the data is also requested, but not were provided.

b. *"Biological characterization of shallow-water coral reef communities across a water quality gradient within the Luis Peña Channel Natural Reserve, Culebra Island, Puerto Rico"* (2009).

i. The objective of the study was assess the quality of the water (physical and microbiological conditions) in and out of the Luis Peña channel No-Take Natural Reserve (LPCNR) and determine if any gradient stress quality there was significant water associated with pollution from non-point that could pose a threat to the communities of coral reefs.

ii. The parameters were analyzed are the following: temperature, pH, salinity, conductivity, DO.

iii. The samples were collected during the period of May to December 2008.

iv. Disclaimer: PREQB does not know the quality requirements of the sampling and analysis of the water quality data submitted to the agency, thus the quality of the secondary data is unknown.

c. *"Status of coral reef communities along a non-point source pollution stress gradient off the Fajardo River Mouth, Fajardo, Puerto Rico* (2010)*".*
   i. The objective of the study was determining the condition of coral reefs off the Fajardo coast.
   ii. Parameters analyzed were temperature, salinity, conductivity, dissolved oxygen, turbidity, fecal coliforms and enterococci.
   iii. EQB already have the most recent information for the corresponding assessment unit (PREC19), in as much as this segment has a permanent monitoring station.

d. *"Chronic impacts of sewage and turbidity on coral reefs within the Tres Palmas Marine Reserve, Rincon (TPMR), Puerto Rico: I. Threatened Elkhorn coral (Acropora palmata) populations"* (2011).
   i. The objective of the study was determining the distribution and condition of Elkhorn coral at the period of the research within the TPMR to provide a basis to assess its population status and trends, and to determine if there were impacts associated to runoff and sewage pollution on coral colonies.
   ii. Parameters analyzed: turbidity, fecal coliform, enterococci, temperature, pH, salinity (ppt), conductivity, and dissolved oxygen.
   iii. The samples were collected through May and December 2011.
   iv. The study shows and discuss the results for the parameter of turbidity, fecal coliform and enterococci. The results for the parameters of pH, salinity, conductivity and dissolved oxygen are not shows in this report. The author mention that the details about water quality samplings were previously discussed in other phases of the report. However does not indicated in which document are discussed.
   v. Only the data of fecal coliforms, enterococci and turbidity will be used in the IR 2014.
   vi. Disclaimer: PREQB does not know the quality requirements of the sampling and analysis of the water quality data submitted to the agency, thus the quality of the secondary data is unknown.

13. Mr. James K. Kurtenbach, EPA, Region II
    a. 2012-2013 Probabilistic Stream Survey in Puerto Rico
       i. The monitoring network consist of approximately 50 monitoring stations (See Figures 9)
       ii. Water chemistry, physical habitat and macro invertebrate data were collected.
       iii. Time period: February and March 2013; April, August, and September 2012.

Figure 3: San Juan Bay Estuary System Monitoring Stations

Figure 4: NOAA - Bahía de Jobos Monitoring Stations

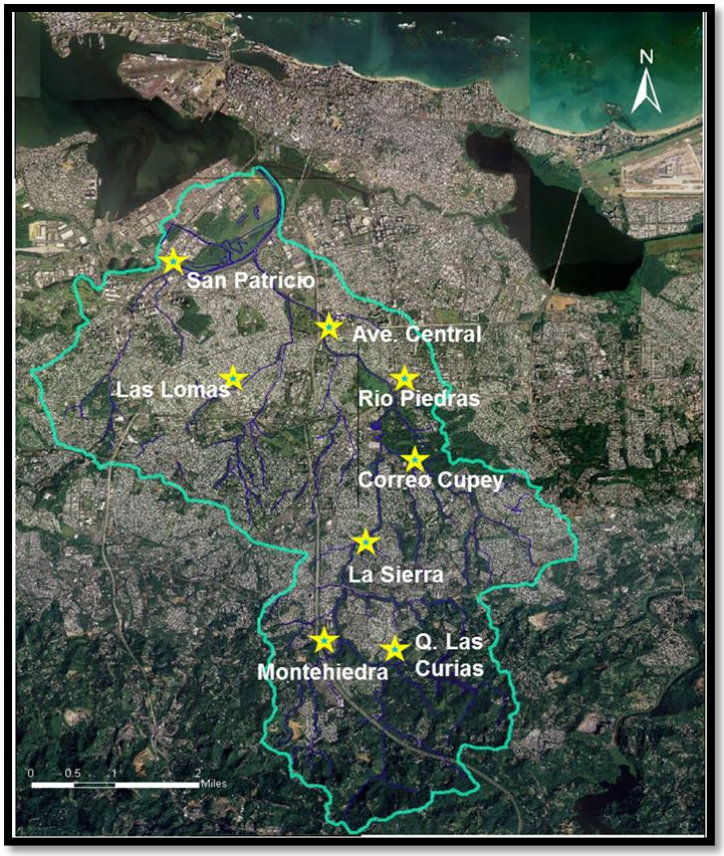

Figure 5: Río Piedras Basin Monitoring Stations

Figure 6: NOAA and the University of Puerto Rico monitoring stations

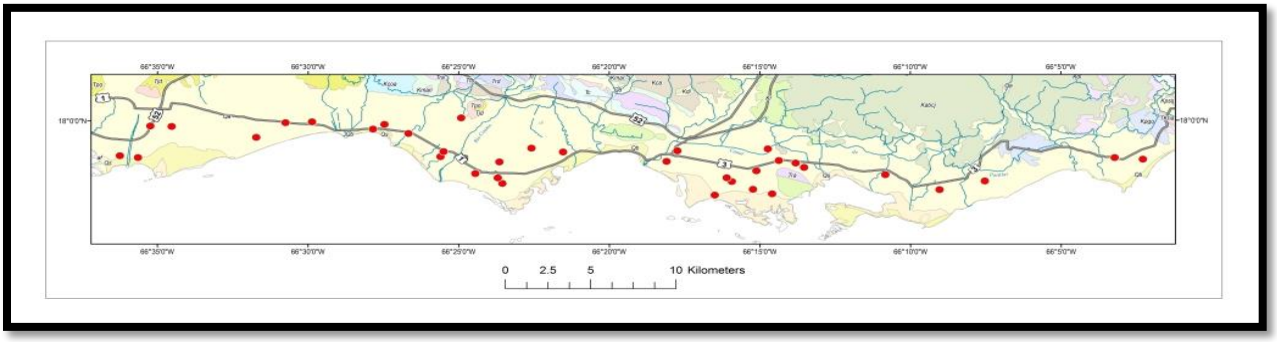

Figure 7: South Coast Wells location

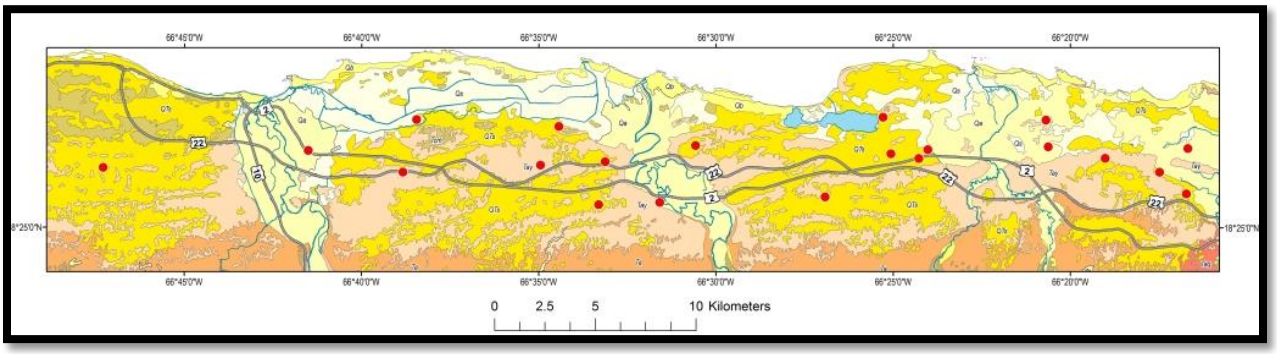

Figure 8: North Coast Wells location

Figure 9: 2012-2013 Probabilistic Stream Survey in Puerto Rico

2.4 Water's Quality External Data - Access Online

Due to the large number of published information on the Internet and its accessibility, the PREQB conducted a search for information related to the quality of the coastal water in Puerto Rico, in order to evaluate the greater amount of information that is available. To perform a more complete evaluation, the information search is delimited to recognized and reliable sources. The main source of information from which it could access data was the NOAA and its partners in the Caribbean Area, The Caribbean Coastal Ocean Observing System (CariCOOS) and the Puerto Rico Seismic Network. NOAA maintains these network of buoys in coastal areas of Puerto Rico of which temperature data was obtained. (See Figures 10 and 11).

Other important information that was accessed for internet and included part of the data in this assessment 2014 cycle is Oceans Acidification Project. The PMEL carbon group is developing a network of carbon dioxide systems on coastal moorings. In PR the monitoring station it is managed by CariCOOS and take data for temperature and pH additional to CO_2. (See Figures 12 and 13).

The monitoring station is located in one area of La Parguera at the municipality of Lajas, in the assessment unit PRSC41B2. The temperature and pH data will be used to evaluate the corresponding assessment unit, for these parameters, in addition to the data of the coastal network of PREQB. However, data for CO_2 will not be included for this evaluation cycle, because the PREQB does not have a water quality standard for this parameter.

Disclaimer Note of the web page of CariCOOS: This information is presented as a good faith service to the scientific community, the public in general and to our colleagues and friends. The information, views and opinions herein provided should not be viewed as formally accurate scientific data and/or advice that can be relied upon without proper verification and validation. This service should not be construed as a substitute for specific data that could be obtained through official sources. If any inaccuracy is observed, please inform CaRA as soon as possible for verification and correction, as necessary. Use of and reliance upon the information provided in this web site signifies that its user(s) understands and have accepted of the above mentioned caveat and conditions.

Disclaimer Note of the web page of National Data Buoy Center, NOAA: This operational server maintains a current database of meteorological and hydrological data, historical data, and written information generated by the NWS or received from other official sources. In addition, this server accesses in real time a selection of current official weather observations, forecasts, and warnings from U.S. government sources for use by the national and international community. In an effort to enhance the science, experimental products may be accessible on this server and care must be taken when using such products as they are intended for research use.

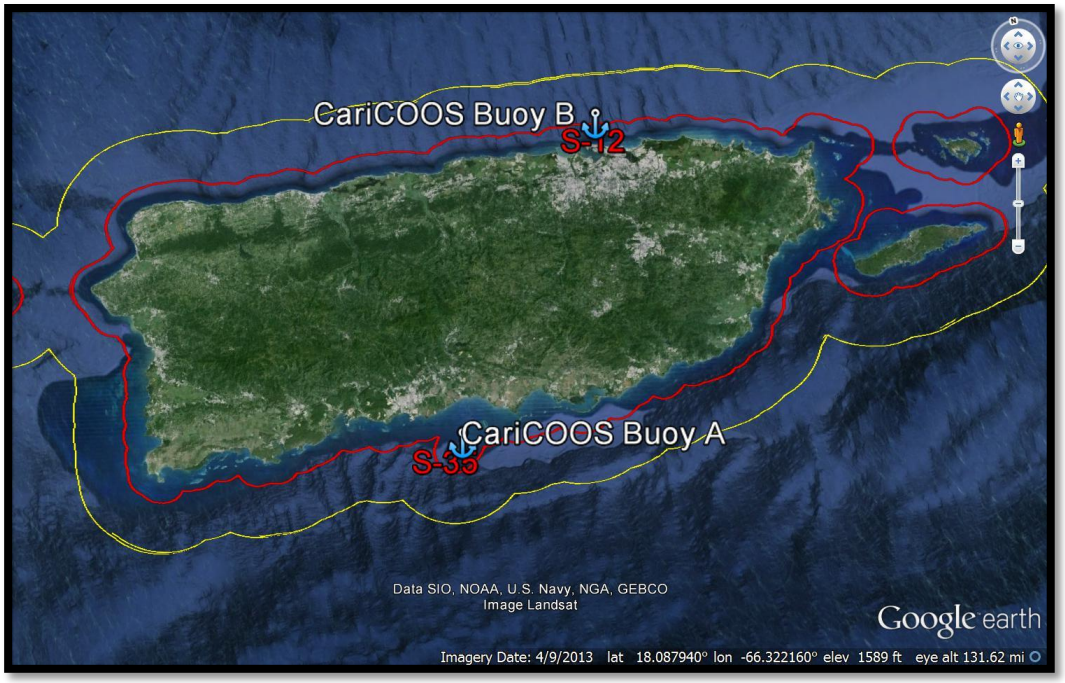

Figure 10: Buoy of CariCoos (Temperature Data)

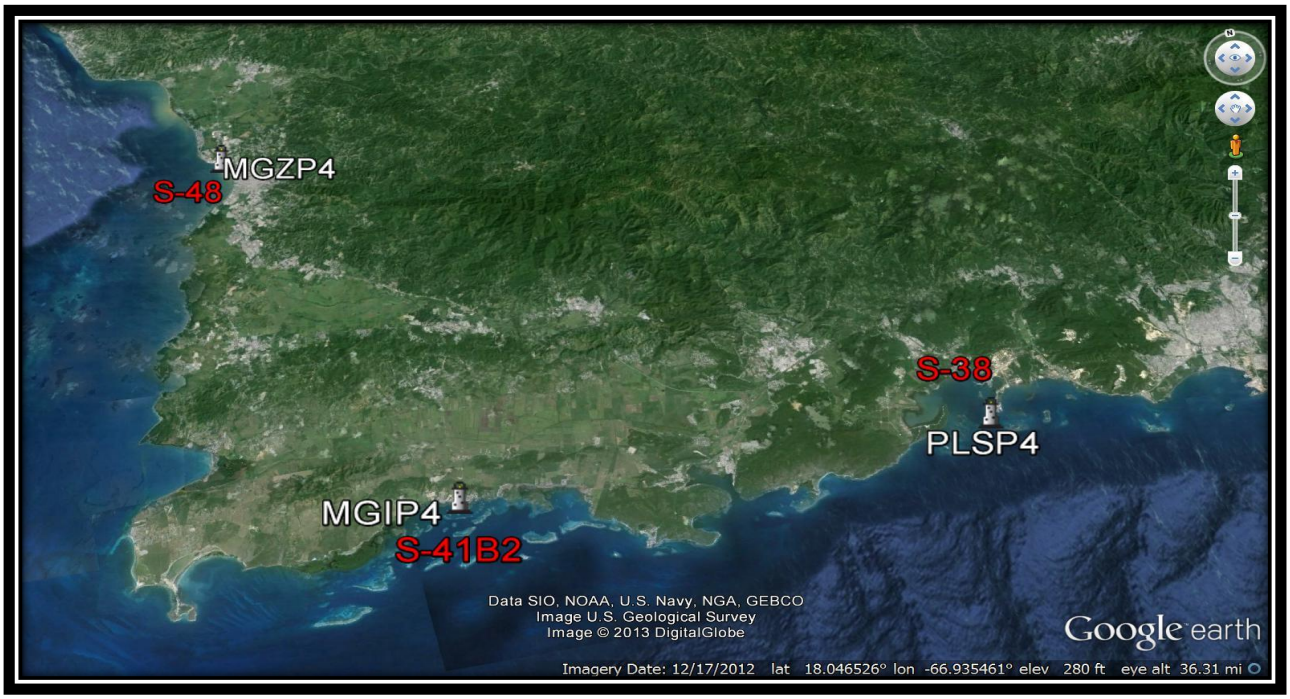

Figure 11: NOAA The National Buoy Center and PR Seismic Network (temperature Data)

Figure 12: Monitoring Station of CariCoos in La Parguera

Figure 13: Buoy in La Parguera (Monitoring Station) NOAA, PMEL

3.0 Designated Uses, and Applicable Water Quality Standards

The Puerto Rico Water Quality Standards Regulation (PRWQSR, March 2010, as amended) established, as goals, the need to preserve, maintain and enhance the quality of the waters of Puerto Rico to assure that they are compatible with the social and economic needs of Puerto Rico and comply with the requirements of the Federal Clean Water Act.

The PRWQSR establishes the designated uses to be maintained and protected for all waters in the archipelago of Puerto Rico. These uses include:

1. Protection and propagation of fish, shellfish and wildlife;
2. Primary and secondary contact recreation; and
3. Raw source of drinking water (Class SD waters only).

The PRWQSR also includes the corresponding standards to protect each of the designated uses. All waters reported in the IR will be evaluated, based on availability of water quality data and/or other available information to determine if they comply with the different applicable water quality standards and whether or not the designated uses were attained. The water body classification established in the PRWQSR are as follows:

CLASS SA - Coastal and estuarine waters of high quality or exceptional ecological or recreational value whose existing conditions shall not be altered, except by natural causes, in order to preserve its natural characteristics.

CLASS SB - Coastal waters and estuarine waters intended for use in primary and secondary contact recreation, and for propagation and preservation of desirable species including threatened or endangered species. Coastal and estuarine waters not classified as Class SA or SC under Rules 1302.1 (A) and (C) of the PRWQSR. Class SB also includes lagoons not classified under any other class. This classification will apply from the zone subject to the ebb and flow of tides (mean sea level) up to 500 meters (0.31 miles) seaward from said zone. Beyond this limit, the next less restrictive classification will apply to a maximum of 10.35 miles (16,656.71 meters) seaward.

CLASS SC – Coastal waters intended for primary contact recreation, from the zone subject to the ebb and flow of tides (mean sea level) to 3 miles seaward, and secondary contact recreation from 3 miles seaward to 10.35 miles seaward, and for the propagation and preservation of desirable species, including threatened or endangered species.

- ✓ **Mayagüez Bay –** from Punta Guanajibo to Punta Algarrobo
- ✓ **Yabucoa Port**
- ✓ **Guayanilla and Tallaboa Bays –** from Cayo Parguera to Puerto Verraco
- ✓ **Ponce Port** – from Punta Carenero to Punta Cuchara
- ✓ **San Juan Port** – from Isla de Cabras to Punta El Morro

CLASS SD - Surface waters intended for use as a raw source of public water supply, propagation and preservation of desirable species, including threatened and endangered species, as well as primary and secondary contact recreation. Primary contact recreation is precluded in any stream or segment that does not comply with the Rule 1303.2 (D) (2) (l) of the PRWQSR until such stream or segment meets the goal of the referred section.

CLASS SE - Surface waters and wetlands of exceptional ecological value, whose existing conditions should not be altered in order to preserve its natural characteristics.

The following tables summarize the existing applicable water quality standards that will be used to perform the assessment for the 2014 IR. Here are shown the maximum allowable concentrations for specific substances in coastal and estuarine waters, surface waters, and ground waters:

Table 9: Specific Water Quality Standards for Selected Parameters (as established in the PRWQSR)

PARAMETER	COASTAL WATERS (ug/l)	RIVERS AND STREAM (ug/l)
Antimony (Sb) [+, &]	640 (HH)	5.6 (HH)
Arsenic (As)[*,+,&]	36.0 (AL)	10.0 (DW)
Cadmium (Cd)[+,%,&]	8.85 (AL)	Note 1 (AL)
Chromium III (Cr^{+3})[+,&]	-	Note 2 (AL)
Chromium VI (Cr^{+6})[+,&]	50.35 (AL)	11.43 (AL)
Chromium (Cr)[&]	-	-
Copper (Cu)[+,&]	3.73 (AL)	Note 3 (AL)
Cyanide (Free CN)[+]	1.0 (AL)	5.2(AL)
Fluoride (F^-)	-	4000 (DW)
Lead (Pb)[+,%,&]	8.52 (AL)	Note 6 (AL)
Mercury (Hg)[+,&]	0.051(HH)	0.050 (HH)
Nickel (Ni)[+,&]	8.28 (AL)	Note 4 (AL)
Nitrate + Nitrite (as N)	-	10,000 (DW)
Nitrogen (NO_3, $N0_2$, NH_3)	5,000	-
Nitrite (as N)	-	-
Selenium (Se)[+,&]	71.14 (AL)	5.0 (AL)
Silver (Ag)[+,&]	2.24 (AL)	Note 5 (AL)
Sulfide (Undissociated H_2S)	2.0 (AL)	2.0 (AL)
Zinc (Zn)[+,&]	85.62 (AL)	Note 7 (AL)
Thallium (Tl)[+,&]	0.47 (HH)	0.24 (HH)

AL - Standard based on protection of the water body for the propagation and preservation of desirable species dependent on water quality.
DW - Standard based on protection of the water body for use as a raw source of drinking water supply.
HH - Standard based on protection of the water body or existing aquatic life for reasons of human health.

Note 1 - Concentration in ug/l must not exceed the numerical value given by $e^{(0.7409\ [\text{Ln Hardness}]\ -4.719)}$.
Note 2 - Concentration in ug/l must not exceed the numerical value given by $e^{(0.8190\ [\text{Ln Hardness}]\ +0.6848)}$.
Note 3 - Concentration in ug/l must not exceed the numerical value given by $e^{(0.8545\ [\text{Ln Hardness}]\ -1.702)}$.
Note 4 - Concentration in ug/l must not exceed the numerical value given by $e^{(0.8460\ [\text{Ln Hardness}]+\ 0.0584)}$.
Note 5 - Concentration in ug/l must not exceed the numerical value given by $e^{(1.72\ [\text{Ln Hardness}]\ -\ 6.59)}$.
Note 6 - Concentration in ug/l must not exceed the numerical value given by $e^{(1.273\ [\text{Ln Hardness}]\ -\ 4.705)}$.
Note 7 - Concentration in ug/l must not exceed the numerical value given by $e^{(0.8473\ [\text{Ln Hardness}]\ +\ 0.884)}$.
***** Identifies a substance that may be a carcinogen.
+ Identifies a priority pollutant.

% In cases where the surface water body is used as a source of drinking water supply, the water quality standard for the indicated substance shall not exceed the drinking water standard upstream from the water intake.
& The number represent a total recoverable value.

Table 10: Water Quality Standard for Specific Classifications

PARAMETER	SA	SB	SC	SD	SE
Chlorides	Note 1	-	-	250 mg/L	Note 1
Color	Note 1	Shall not be altered except by natural causes	Shall not be altered except by natural causes	15 Pt-Co.	Note 1
Dissolved Oxygen	Note 1	Not less than 5 mg/L	Not less than 4mg/L	Not less than 5 mg/L	Note 1
Enterococcus	Note 1	Note 2	(Note 2)	-	Note 1
Fecal Coliforms	Note 1	Note 3	Note 5	Note 3	Note 1
Other Pathogenic Organisms	Note 1	-	-	Free of Pathogens	Note 1
pH	Note 1	7.3-8.5	7.3-8.5	6.0-9.0	Note 1
Sulfates	Note 1	2,800 mg/L	2,800 mg/L	250 mg/L	Note 1
Surfactants as MBAS	Note 1	500 ug/L	500 ug/L	100 ug/L	Note 1
Taste and odor producing substances	Note 1	Shall not be present	Shall not be present	Shall not be present	Note 1
Total Dissolved Solids	Note 1	-	-	500 mg/L	Note 1
Total Ammonia[@]	Note 1	-	-	1mg/L at specific segments established	Note 1

PARAMETER	SA	SB	SC	SD	SE
				in the WQSR	
Total Coliforms	Note 1	-	-	Note 4	Note 1
Total Phosphorous	Note 1	-	-	1 mg/L*	Note 1
Turbidity	Note 1	10 NTU	10 NTU	50 NTU	Note 1

* Applicable in SD waters upstream from reservoirs, in segment with water in takes or estuarine waters.

@ Total Ammonia standard shall not exceed 1 mg/l upstream from the points given by coordinates for the following segments:

SEGMENT	COORDINATES	SEGMENT	COORDINATES
Río Cibuco	18°21'13" 66°20'07"	Río Cagüitas	18°15'11" 66°01'26"
Río Hondo	18°26'13" 66°09'36"	Río Bairoa	18°15'28" 66°02'13"
Río Guaynabo	18°22'32" 66°07'59"	Río Chico	17°59'16" 66°00'18°
Río Bayamón	18°24'39" 66°09'09"	Río Coamo	18°03'52" 66°22'10"
Río Piedras	18°24'34" 66°04'10"	Río Guayanilla	18°00'50" 66°47'04"
Quebrada Blasina	18°23'27" 65°58'28"	Río Guanajibo	18°07'18" 67°03'56"

Note 1 - No parameter, whether or not considered in this classification, shall be altered in concentration, except by natural causes. Substances reactive with methylene blue shall not be present.

Note 2- The Enterococci density, in terms of geometric mean of at least five representative samples taken sequentially shall not exceed 35 col/100mL. No single sample should exceed the upper confidence limit of 75% using 0.7 as the log standard deviation, until sufficient site data exist to establish a site-specific log standard deviation".

Note 3- The fecal coliforms geometric mean of a series of representative samples (at least five samples) of the waters taken sequentially shall not exceed 200 col/100mL, and not more than 20 percent of the samples shall exceed 400 col/100mL.

Note 4 – The total coliforms geometric mean of a series of representative samples (at least five samples) of the waters taken sequentially shall not exceed 10,000 col/100mL of total coliforms.

Note 5 – For coastal waters Class SC will be assessed from the zone subject to ebb and flow of tides (mean sea level) to 3.0 miles seaward, Coliform geometric mean of a series of representatives samples (at least five samples) of the water taken sequentially shall not exceed 200 col/100mL of Fecal Coliform, and not more than 20% of the sample shall exceed 400 col/100mL. From 3.0 miles seaward to 10.35 miles seaward, on the geometric mean of a series of representative samples (at least five samples) of the waters taken sequentially shall not exceed 2,000 colonies/100mL of Fecal Coliform. Not more than 20% of the samples shall exceed 4,000 colonies/100mL of Fecal Coliform.

4.0 Water Quality Assessment by Designated Uses

The surface waters (rivers, lakes/lagoons, estuaries and coasts) for which data are available are assessed for the following designated uses in accordance with the requirements of the Clean Water Act and the PRWQSR: primary contact recreation (swimming), secondary contact recreation, raw source of drinking water supply and protection and propagation of fish, shellfish and wildlife (aquatic life):

1. Primary Contact Recreation(Swimming):

   a) Inland Waters:
   For primary contact recreation the use support evaluation will be based on the Coliform geometric mean of a series of representative samples (at least five samples) of the water taken sequentially shall not exceed 10,000 col/100mL of Total Coliform or 200 col/100mL of Fecal Coliform. Not more than 20% of the sample shall exceed 400 col/100mL of Fecal Coliform.

   b) Coastal Waters:
      a. Class SB
      For primary contact recreation the use support evaluation will be based on the Coliform geometric mean of a series of representatives samples (at least five samples) of the water taken sequentially shall not exceed 200 col/100mL of Fecal Coliform, and not more than 20% of the sample shall exceed 400 col/100mL. The Enterococcus density in terms of geometric mean of at least five representative samples taken sequentially shall not exceed 35/100mL. No single sample should exceed the upper confidence limit of 75% using 0.7 as the log standard deviation, until sufficient site data exist to establish a site-specific log standard deviation.

      b. Class SC
      For primary contact recreation coastal waters Class SC will be assessed from the zone subject to ebb and flow of tides (mean sea level) to 3.0 miles seaward, Coliform geometric mean of a series of representatives samples (at least five samples) of the water taken sequentially shall not exceed 200 col/100mL of Fecal Coliform, and not more than 20% of the sample shall exceed 400 col/100mL. The Enterococcus density in terms of geometric mean of at least five representative samples taken sequentially shall not exceed 35/100mL. No single sample should exceed the upper confidence limit of 75% using 0.7 as the log standard deviation, until sufficient site data exist to establish a site-specific log standard deviation.

2. Secondary Contact Recreation:

   1. Inland Waters
   For secondary contact recreation the use support evaluation will be based on the Coliform geometric mean of a series of representative samples (at least five samples) of the water taken sequentially shall not exceed 10,000 col/100mL of Total Coliform or 200 col/100mL of Fecal Coliform. Not more than 20% of the sample shall exceed 400 col/100mL of Fecal Coliform.

   2. Coastal Waters

a. Class SB
For secondary contact recreation the use support evaluation will be based on the geometric mean of a series of representative samples (at least five) of fecal coliforms. When the geometric mean was less or equal to 200 colonies/100mL and the 20% of the individual samples did not exceed the value of 400 colonies/100mL. The Enterococcus density in terms of geometric mean of at least five representative samples taken sequentially shall not exceed 35/100mL. No single sample should exceed the upper confidence limit of 75% using 0.7 as the log standard deviation, until sufficient site data exist to establish a site-specific log standard deviation.

b. Class SC
For secondary contact recreation the use support evaluation will be based from 3.0 miles seaward to 10.35 miles seaward, on the geometric mean of a series of representative samples (at least five samples) of the waters taken sequentially shall not exceed 2,000 colonies/100mL of Fecal Coliform. Not more than 20% of the samples shall exceed 4,000 colonies/100mL of Fecal Coliform.

3. Raw Source of Drinking Water (rivers and lakes):

The assessment of the drinking water use will be based on monitored contaminants listed in the PRWQSR and the data obtained from the Source Water Assessment Program (SWAP). The additional criterion used to assess raw source of drinking water use is the presence of a water intake in the assessment unit. To assess the Raw Sources of Drinking Water use, will be considered the compliance of water quality standards for the parameters indicated below:

Aldrin	Fluoride
Alpha-BHC	Heptachlor
Antimonium (Sb)	Lindane
Arsenic (As)	Mercury (Hg)
Beta-BHC	Nitrates + Nitrites (NO_3 + NO_2)
Chlorides	Thallium (Tl)
Dieldrin	Total Phosphorus (P)
Endrin Aldehyde	Turbidity
Endosulfan Sulfide	Pentachlorophenol

In all cases, each parameter considered is evaluated strictly in accordance with the applicable standard. A single violation of the standard is enough to identify the segment non-support for RSDW.

4. Protection and propagation of fish, shellfish and wildlife (aquatic life):

   Currently, the aquatic life use is based on the physical /chemical data collected on sampling incursions during key periods (high and low flows) for all parameters applicable to this use as indicated in the PRWQSR.

   In all cases, each parameter considered will be evaluated strictly in accordance with the applicable standard. The toxic parameters taken into consideration are:

Ammonia (NH_3)	Cyanide (Free CN)	Silver (Ag)
Antimonium (Sb)	Lead (Pb)	Sulfide (S) (undissociated H_2S)
Cadmium (Cd)	Mercury (Hg)	Surfactants
Copper (Cu)	Niquel (Ni)	Thallium (Tl)
Chlorides	Pesticides (Organochlorides)	Zinc (Zn)
Chromium (Cr)	Selenium (Se)	

   The conventional parameters used for the assessment of aquatic life use support were:

Dissolved Oxygen (DO)	Temperature
pH	Turbidity

   A single violation of the standard was enough to identify the segment as non-support for the aquatic life use.

5.0 Assessment Categories

The current assessment of the water quality in Puerto Rico will be performed taking into consideration the five (5) attainment categories currently required to be used for the 305(b)/303(d) Integrated Report. These attainment categories are:

Category 1: Waters that are attaining the applicable water quality standards for all designated uses.

Category 2: Waters that are attaining some of the designated uses, but no data is available to make attainment determinations for the remaining designated uses.

Category 3: Waters for which the information available is insufficient to determine if any designated uses are being attained.

Category 4: Waters in which particular designated uses are impaired or threatened and it is expected that they will meet the water quality standards with the implementation of the adequate and corresponding control measures without the development of TMDLs.

4a - A state developed TMDL has been approved by EPA or a TMDL has been established by EPA for any segment/pollutant combination.

4b - Other required control measures are expected to result in the attainment of an applicable water quality standard in a reasonable period of time.

4c - The non-attainment of any applicable water quality standard for the segment is the result of pollution and is not caused by a pollutant.

Category 5: Waters where at least one water quality standard was not attained (impaired or non-support assessment units). The unattainment of water quality standards requires the development and implementation of a TMDL. Waters identified as impaired are included in the 303(d) List.

6.0 303(d) List

6.1 Listing Criteria

The Puerto Rico 2014 List of Impaired Waters (303(d) List) is based on the water quality data generated through the water quality monitoring networks, evaluations of non-point sources in accordance with Section 319 of the Clean Water Act, special water quality studies and external or secondary data. In the case of the 2014 303(d) List, we considered the most recent available water quality data for each parameter in each AU. In this cycle, the AU will be assessed on the basis of multiple categories for each use. This approach allows the identification of previously listed 303(d) segments within the new AU. The waters considered to be impaired have been included in Category 5. The PREQB 2014 CWA 303(d) List is included as Appendix I of the IR.

Where applicable, the new AU that has included in it previously 303(d) listed segments or newly listed segments will include these segments specifically identified as Category 5, along with the parameters that are the driving cause for listing. In the case of basins for which TMDLs have been developed, the segments will continue to be listed for those parameters that were not addressed in the TMDL. Those parameters addressed in the TMDL are delisted from the respective AU.

If any of the parameters listed in the 2014 cycle violated the applicable water standard at least once, the parameter continued to appear as an impairment cause and the segment continued to be listed in Category 5.

6.2 Delisting Criteria

If a previously listed parameter complied fully with the applicable water quality standard during the 2012 and 2014 cycles, that specific parameter will be delisted from Category 5.

PREQB will remove a specific parameter from the list when the TMDL for the corresponding AU has been approved by USEPA. Also other valid delisting reasons are:

- change in water quality standard
- original basis for listing was incorrect
- new assessment method
- restoration activities
- reason for recovery unspecified

PREQB propose remove the following parameter / assessment units combination from the 303(d) List during this cycle.

Table 11: Parameter/Assessment Units Combinations to be delisted

TYPE OF WATER	AU ID	PARAMETER	REASON FOR DELISTING
RIVER	PRNR3A1	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRNR3A1	LOW DISSOLVED OXYGEN	WATER QUALITY IMPROVEMENT
RIVER	PRNR3A1	TURBIDITY	WATER QUALITY IMPROVEMENT
RIVER	PRNR3A2	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRNR3A2	FECAL COLIFORMS	TMDL APPROVED
RIVER	PRNR3A2	TURBIDITY	WATER QUALITY IMPROVEMENT
RIVER	PRNQ3B	FECAL COLIFORMS	TMDL APPROVED
RIVER	PRNR7A1	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRNR7A2	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRNR7A3	ARSENIC	WATER QUALITY IMPROVEMENT

TYPE OF WATER	AU ID	PARAMETER	REASON FOR DELISTING
RIVER	PRNR7A3	TURBIDITY	WATER QUALITY IMPROVEMENT
RIVER	PRNR7C2	LOW DISSOLVED OXYGEN	WATER QUALITY IMPROVEMENT
RIVER	PRNR7B2	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRNR7B2	pH	WATER QUALITY IMPROVEMENT
RIVER	PRNR8A1	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRNR8A2	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRNR8B	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRNR8B	COPPER	WATER QUALITY IMPROVEMENT
RIVER	PRNR8B	SURFACTANTS	WATER QUALITY IMPROVEMENT
RIVER	PRNR8E1	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRNR9A	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRNR9A	SURFACTANTS	WATER QUALITY IMPROVEMENT
RIVER	PRER10A1	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRER10A3	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRER10A4	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRER10A4	SURFACTANTS	WATER QUALITY IMPROVEMENT
RIVER	PRER10A4	COPPER	WATER QUALITY IMPROVEMENT
RIVER	PRER10E	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRER11A	FECAL COLIFORMS	TMDL APPROVED

TYPE OF WATER	AU ID	PARAMETER	REASON FOR DELISTING
RIVER	PRER12A1	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRER12A1	FECAL COLIFORMS	TMDL APPROVED
RIVER	PRER12A1	LEAD	WATER QUALITY IMPROVEMENT
RIVER	PRER12A2	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRER12A2	FECAL COLIFORMS	TMDL APPROVED
RIVER	PRER12B	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRER12B	SURFACTANTS	WATER QUALITY IMPROVEMENT
RIVER	PRER12B	COPPER	WATER QUALITY IMPROVEMENT
RIVER	PRER12B	LEAD	WATER QUALITY IMPROVEMENT
RIVER	PRER12B	FECAL COLIFORMS	TMDL APPROVED
RIVER	PRER14A1	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRER14A1	SURFACTANTS	WATER QUALITY IMPROVEMENT
RIVER	PRER14A1	FECAL COLIFORMS	TMDL APPROVED
RIVER	PRER14A2	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRER14A2	SURFACTANTS	WATER QUALITY IMPROVEMENT
RIVER	PRER14A2	FECAL COLIFORMS	TMDL APPROVED
RIVER	PRER14B	FECAL COLIFORMS	TMDL APPROVED
RIVER	PRER14C	FECAL COLIFORMS	TMDL APPROVED
RIVER	PRER14G1	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRER14H	ARSENIC	WATER QUALITY IMPROVEMENT

TYPE OF WATER	AU ID	PARAMETER	REASON FOR DELISTING
RIVER	PRER14H	SURFACTANTS	WATER QUALITY IMPROVEMENT
RIVER	PRER14I	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRER15A	FECAL COLIFORMS	TMDL APPROVED
RIVER	PRER16A	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRER16A	FECAL COLIFORMS	TMDL APPROVED
RIVER	PRER17A	FECAL COLIFORMS	TMDL APPROVED
RIVER	PRER20A	FECAL COLIFORMS	ORIGINAL BASIS FOR LISTING WAS INCORRECT
RIVER	PRER22A	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRER22A	FECAL COLIFORMS	TMDL APPROVED
RIVER	PRER29A	FECAL COLIFORMS	TMDL APPROVED
RIVER	PREQ32A	FECAL COLIFORMS	ORIGINAL BASIS FOR LISTING WAS INCORRECT
RIVER	PRER33A	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRER33A	FECAL COLIFORMS	TMDL APPROVED
RIVER	PRER34A	FECAL COLIFORMS	TMDL APPROVED
RIVER	PRER35A	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRER35A	FECAL COLIFORMS	TMDL APPROVED
RIVER	PREQ36A	FECAL COLIFFORMS	ORIGINAL BASIS FOR LISTING WAS INCORRECT
RIVER	PRER37A	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRER37A	SURFACTANTS	WATER QUALITY IMPROVEMENT
RIVER	PRER37A	FECAL COLIFORMS	TMDL APPROVED

TYPE OF WATER	AU ID	PARAMETER	REASON FOR DELISTING
RIVER	PRSR42A	PHOSPHORUS	WATER QUALITY IMPROVEMENT
RIVER	PRSR42A	SURFACTANTS	WATER QUALITY IMPROVEMENT
RIVER	PRSR43A2	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRSR51A	FECAL COLIFORMS	TMDL APPROVED
RIVER	PRSQ53A	FECAL COLIFORMS	TMDL APPROVED
RIVER	PRSR54A	FECAL COLIFORMS	TMDL APPROVED
RIVER	PRSR57A2	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRSR58A	FECAL COLIFORMS	TMDL APPROVED
RIVER	PRSR62A1	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRSR63A	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRSR67A	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRSR67A	THERMAL MODIFICATION	WATER QUALITY IMPROVEMENT
RIVER	PRSR67A	TURBIDITY	WATER QUALITY IMPROVEMENT
RIVER	PRSR67A	FECAL COLIFORMS	TMDL APPROVED
RIVER	PRSR68A1	FECAL COLIFORMS	TMDL APPROVED
RIVER	PRSR69A1	FECAL COLIFORMS	TMDL APPROVED
RIVER	PRSR69A1	SURFACTANTS	WATER QUALITY IMPROVEMENT
RIVER	PRSR69A2	FECAL COLIFORMS	TMDL APPROVED
RIVER	PRWR77A	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRWR77A	SURFACTANTS	WATER QUALITY IMPROVEMENT

TYPE OF WATER	AU ID	PARAMETER	REASON FOR DELISTING
RIVER	PRWR77A	FECAL COLIFORMS	TMDL APPROVED
RIVER	PRWR77A	AMMONIA	WATER QUALITY IMPROVEMENT
RIVER	PRWR77C	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRWR77C	FECAL COLIFORMS	TMDL APPROVED
RIVER	PRWR77E	FECAL COLIFORMS	TMDL APPROVED
RIVER	PRWR77E	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRWR77E	SURFACTANTS	WATER QUALITY IMPROVEMENT
RIVER	PRWR77E	TURBIDITY	WATER QUALITY IMPROVEMENT
RIVER	PRWR79A	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRWR83A	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRWR83C	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRWR83C	LEAD	WATER QUALITY IMPROVEMENT
RIVER	PRWR83C	LOW DISSOLVED OXYGEN	WATER QUALITY IMPROVEMENT
RIVER	PRWR83C	SURFACTANTS	WATER QUALITY IMPROVEMENT
RIVER	PRWR83C	TURBIDITY	WATER QUALITY IMPROVEMENT
RIVER	PRWR83D	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRWR83D	LEAD	WATER QUALITY IMPROVEMENT
RIVER	PRWR83D	LOW DISSOLVED OXYGEN	WATER QUALITY IMPROVEMENT
RIVER	PRWR83D	SURFACTANTS	WATER QUALITY IMPROVEMENT

TYPE OF WATER	AU ID	PARAMETER	REASON FOR DELISTING
RIVER	PRWR83D	CADMIUM	WATER QUALITY IMPROVEMENT
RIVER	PRWR83D	COPPER	WATER QUALITY IMPROVEMENT
RIVER	PRWR83F	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRWR83G	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRWR83H	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRWR83I	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRWR83I	TURBIDITY	WATER QUALITY IMPROVEMENT
RIVER	PRWQ88A	FECAL COLIFORMS	ORIGINAL BASIS FOR LISTING WAS INCORRECT
RIVER	PRWQ88A	LOW DISSOLVED OXYGEN	ORIGINAL BASIS FOR LISTING WAS INCORRECT
RIVER	PRWR95A	MERCURY	WATER QUALITY IMPROVEMENT
RIVER	PRWR95B	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRWR95B	LEAD	WATER QUALITY IMPROVEMENT
RIVER	PRWR95B	SURFACTANTS	WATER QUALITY IMPROVEMENT
RIVER	PRWR95B	TURBIDITY	WATER QUALITY IMPROVEMENT
RIVER	PRWQ95C	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRWQ95D	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRWQ95F	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRWQ95G	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRWQ95H	ARSENIC	WATER QUALITY IMPROVEMENT

TYPE OF WATER	AU ID	PARAMETER	REASON FOR DELISTING
RIVER	PRWQ95I	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRWR95J	ARSENIC	WATER QUALITY IMPROVEMENT
RIVER	PRWR95K	ARSENIC	WATER QUALITY IMPROVEMENT
ESTUARY	PREE15A	FECAL COLIFORMS	TMDL APPROVED
ESTUARY	PREE16A	FECAL COLIFORMS	TMDL APPROVED
ESTUARY	PREE33A	FECAL COLIFORMS	TMDL APPROVED
ESTUARY	PREE34A	FECAL COLIFORMS	TMDL APPROVED
ESTUARY	PREE35A	FECAL COLIFORMS	TMDL APPROVED
ESTUARY	PREE35.1	FECAL COLIFORMS	TMDL APPROVED
ESTUARY	PRWE78A	FECAL COLIFORMS	TMDL APPROVED
LAKES	PRNL3A1	ARSENIC	WATER QUALITY IMPROVEMENT
LAKES	PREL14A1	ARSENIC	WATER QUALITY IMPROVEMENT
SBEP	PREE13A1	PHOSPHORUS	THIS AU IS CLASSIFIED SC; PHOSPHORUS STANDARD IS NOT APPLICABLE
SBEP	PREE13A1	FECAL COLIFORMS	TMDL APPROVED
SBEP	PREE13A1	AMMONIA	AMMONIA STANDARD IS NOT APPLICABLE FOR THIS SEGMENT
SBEP	PREE13A2	ARSENIC	WATER QUALITY IMPROVEMENT
SBEP	PREE13A2	MERCURY	WATER QUALITY IMPROVEMENT
SBEP	PREE13A2	FECAL COLIFORMS	TMDL APPROVED
SBEP	PREE13A3	ARSENIC	WATER QUALITY IMPROVEMENT

TYPE OF WATER	AU ID	PARAMETER	REASON FOR DELISTING
SBEP	PREE13A3	AMMONIA	WATER QUALITY IMPROVEMENT
SBEP	PREE13A3	SURFACTANTS	WATER QUALITY IMPROVEMENT
SBEP	PREE13A3	PHOSPHORUS	WATER QUALITY IMPROVEMENT
LAGOONS	PRNN0006	ARSENIC	WATER QUALITY IMPROVEMENT
LAGOONS	PRNN0006	FECAL COLIFORMS	WATER QUALITY IMPROVEMENT
LAGOONS	PRNN0006	SURFACTANTS	WATER QUALITY IMPROVEMENT
COASTAL	PRNC04	LOW DISSOLVED OXYGEN	WATER QUALITY IMPROVEMENT
COASTAL	PREC10B	FECAL COLIFORMS	WATER QUALITY IMPROVEMENT
COASTAL	PREC16	ENTEROCOCCUS	WATER QUALITY IMPROVEMENT
COASTAL	PREC19	FECAL COLIFORMS	WATER QUALITY IMPROVEMENT
COASTAL	PREC25	ENTEROCOCCUS	WATER QUALITY IMPROVEMENT
COASTAL	PREC25	FECAL COLIFORMS	WATER QUALITY IMPROVEMENT
COASTAL	PREC28	ENTEROCOCCUS	WATER QUALITY IMPROVEMENT
COASTAL	PREC28	FECAL COLIFORMS	WATER QUALITY IMPROVEMENT
COASTAL	PRSC32	ENTEROCOCCUS	WATER QUALITY IMPROVEMENT
COASTAL	PRSC34	FECAL COLIFORMS	WATER QUALITY IMPROVEMENT
COASTAL	PRWC48	FECAL COLIFORMS	WATER QUALITY IMPROVEMENT

7.0 Priority Ranking and TMDL Development Status

In October of 1998, the PREQB in collaboration with the Natural Resources Conservation Service (NRCS) and EPA developed the document Puerto Rico Unified Watershed Assessment and Restoration Activities (PRUWARA). As a result of this initiative, eighteen (18) main basins were identified as high priority where the PREQB would implement restoration activities. These basins are identified below according to the corresponding regions identified previously:

Table 12: Priority Basins

BASIN	REGION
Quebrada Blasina	East
Río Bayamón	East
Río Blanco	East
Río Grande de Loíza	East
Río Hondo	East
Río La Plata	East
Río Piedras	East
Río Cibuco	North
Río Grande de Arecibo	North
Río Grande de Manatí	North
Río Guajataca	North
Río Coamo	South
Río Grande de Patillas	South
Río Guayanilla	South
Río Culebrinas	West
Río Grande de Añasco	West
Río Guanajibo	West
Río Yagüez	West

The criteria used to establish the priority ranking and selection of basins appear in the document "Puerto Rico Unified Watershed Assessment and Restoration Activities (PRUWA)" and were discussed in the Integrated Report of 2004.

In FY-02 303 (d) List, the PREQB established a priority ranking to determine the sequence of development for restoration activities, including the development and implementation of the TMDL. This priority ranking considered the priority of basins restoration and established three levels of priority:

- ✓ High Priority: basins including in the PRUWA as basins of priority due to the high pollution level related to all the designated uses.

- ✓ Intermediate Priority: basins that were not including in the PRUWA and have 50% or more of its waters as impaired for some designated use.

- ✓ Low Priority: basins that were not including in the PRUWA and have less than 50% of its waters as impaired for some designated use.

According, to the priority ranking established the PREQB in collaboration with EPA and other federal and state agencies worked together in order to develop and implement the TMDL for those watersheds. The table below presents a summary of the TMDL development status in Puerto Rico for this cycle.

Table 13: TMDL Development Status

SEGMENT/POLLUTANT	SEGMENT ID	PROJECT STATUS	PROJECTED TMDL SUBMITTAL DATE
1. RIO GUAJATACA/FECAL COLIFORMS	PRNR3A2	Approved by EPA	September 2012
2. LAGO GUAJATACA/FECAL COLIFORMS	PRNL3A1	Approved by EPA	September 2012
3. QUEBRADA LAS SEQUIAS/FECAL COLIFORMS	PRNQ3B	Approved by EPA	September 2012
4. RIO CAMUY/FECAL COLIFORMS	PRNE5A	Approved by EPA	September 2012
5. RIO CAMUY/FECAL COLIFORMS	PRNR5A	Approved by EPA	September 2012
6. RIO HONDO/FECAL COLIFORMS	PRER11A	Approved by EPA	September 2012
7. RIO BAYAMON/FECAL COLIFORMS	PRER12A1	Approved by EPA	September 2012
8. RIO BAYAMON/FECAL COLIFORMS	PRER12A2	Approved by EPA	September 2012
9. LAGO CIDRA/FECAL COLIFORMS	PREL12A2	Approved by EPA	September 2012
10. RIO GUAYNABO/FECAL COLIFORMS	PRER12B	Approved by EPA	September 2012
11. RIO MINILLAS/FECAL COLIFORMS	PRER12C	Approved by EPA	September 2012
12. SISTEMA ESTUARIO DE LA BAHIA DE SAN JUAN/FECAL COLIFORMS	PREE13A1	Approved by EPA	September 2012

SEGMENT/POLLUTANT	SEGMENT ID	PROJECT STATUS	PROJECTED TMDL SUBMITTAL DATE
13. SISTEMA ESTUARIO DE LA BAHIA DE SAN JUAN/FECAL COLIFORMS	PREE13A2	Approved by EPA	September 2012
14. RIO GRANDE DE LOIZA/FECAL COLIFORMS	PRER14A1	Approved by EPA	September 2012
15. RIO CANOVANAS/FECAL COLIFORMS	PRER14B	Approved by EPA	September 2012
16. RIO CANOVANILLAS/FECAL COLIFORMS	PRER14C	Approved by EPA	September 2012
17. QUEBRADA MARACUTO/FECAL COLIFORMS	PREQ14D	Approved by EPA	September 2012
18. QUEBRADA GRANDE/FECAL COLIFORMS	PREQ14E	Approved by EPA	September 2012
19. RIO HERRERA/FECAL COLIFORMS	PREE15A	Approved by EPA	September 2012
20. RIO HERRERA/FECAL COLIFORMS	PRER15A	Approved by EPA	September 2012
21. RIO ESPIRITU SANTO/FECAL COLIFORMS	PREE16A	Approved by EPA	September 2012
22. RIO ESPIRITU SANTO/FECAL COLIFORMS	PRER16A	Approved by EPA	September 2012
23. RIO MAMEYES/FECAL COLIFORMS	PREE17A	Approved by EPA	September 2012
24. RIO MAMEYES/FECAL COLIFORMS	PRER17A	Approved by EPA	September 2012
25. RIO HUMACAO/FECAL COLIFORMS	PREE33A	Approved by EPA	September 2012
26. RIO HUMACAO/FECAL COLIFORMS	PRER33A	Approved by EPA	September 2012
27. RIO CANDELERO/FECAL COLIFORMS	PREE34A	Approved by EPA	September 2012
28. RIO CANDELERO/FECAL COLIFORMS	PRER34A	Approved by EPA	September 2012
29. RIO GUAYANES/FECAL COLIFORMS	PREE35A	Approved by EPA	September 2012
30. RIO GUAYANES/FECAL COLIFORMS	PRER35A	Approved by EPA	September 2012

SEGMENT/POLLUTANT	SEGMENT ID	PROJECT STATUS	PROJECTED TMDL SUBMITTAL DATE
31. CAÑO SANTIAGO/FECAL COLIFORMS	PREE35.1	Approved by EPA	September 2012
32. CAÑO SANTIAGO/FECAL COLIFORMS	PREK35.1	Approved by EPA	September 2012
33. RIO MAUNABO/FECAL COLIFORMS	PRER37A	Approved by EPA	September 2012
34. QUEBRADA AGUAS VERDES/FECAL COLIFORMS	PRSE53A	Approved by EPA	September 2012
35. QUEBRADA AGUAS VERDES/FECAL COLIFORMS	PRSQ53A	Approved by EPA	September 2012
36. RIO NIGUAS DE SALINAS/FECAL COLIFORMS	PRSE54A	Approved by EPA	September 2012
37. RIO NIGUAS DE SALINAS/FECAL COLIFORMS	PRSR54A	Approved by EPA	September 2012
38. RIO JACAGUAS/FECAL COLIFORMS	PRSE60A	Approved by EPA	September 2012
39. RIO JACAGUAS/FECAL COLIFORMS	PRSR60A1	Approved by EPA	September 2012
40. RIO JACAGUAS/FECAL COLIFORMS	PRSR60A2	Approved by EPA	September 2012
41. LAGO GUAYABAL/FECAL COLIFORMS	$PRSL_1$60A	Approved by EPA	September 2012
42. LAGO TOA VACA/FECAL COLIFORMS	$PRSL_2$60A	Approved by EPA	September 2012
43. RIO INABON/FECAL COLIFORMS	PRSE61A	Approved by EPA	September 2012
44. RIO INABON/FECAL COLIFORMS	PRSR61A	Approved by EPA	September 2012
45. RIO GUAYANILLA/FECAL COLIFORMS	PRSR67A	Approved by EPA	September 2012
46. RIO YAUCO/FECAL COLIFORMS	PRSE68A	Approved by EPA	September 2012
47. RIO YAUCO/FECAL COLIFORMS	PRSR68A1	Approved by EPA	September 2012
48. RIO YAUCO/FECAL COLIFORMS	PRSR68A2	Approved by EPA	September 2012
49. LAGO LUCHETTI/FECAL COLIFORMS	PRSL68A1	Approved by EPA	September 2012
50. RIO LOCO/FECAL COLIFORMS	PRSE69A	Approved by EPA	September 2012
51. RIO LOCO/FECAL COLIFORMS	PRSR69A1	Approved by EPA	September 2012
52. RIO LOCO/FECAL COLIFORMS	PRSR69A2	Approved by EPA	September 2012
53. LAGO LOCO/FECAL COLIFORMS	PRSL69A	Approved by EPA	September 2012

SEGMENT/POLLUTANT	SEGMENT ID	PROJECT STATUS	PROJECTED TMDL SUBMITTAL DATE
54. RIO GUANAJIBO/FECAL COLIFORMS	PRWR77A	Approved by EPA	September 2012
55. RIO HONDO/FECAL COLIFORMS	PRWR77B	Approved by EPA	September 2012
56. RIO ROSARIO/FECAL COLIFORMS	PRWR77C	Approved by EPA	September 2012
57. RIO VIEJO/FECAL COLIFORMS	PRWR77D	Approved by EPA	September 2012
58. RIO DUEY Y RIO HOCONUCO/FECAL COLIFORMS	PRWR77E	Approved by EPA	September 2012
59. RIO CAIN/FECAL COLIFORMS	PRWR77F	Approved by EPA	September 2012
60. RIO CUPEYES/FECAL COLIFORMS	PRWR77G	Approved by EPA	September 2012
61. RIO CRUCES/FECAL COLIFORMS	PRWR77H	Approved by EPA	September 2012
62. RIO GRANDE/FECAL COLIFORMS	PRWR77I	Approved by EPA	September 2012