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| **DEQ logo** | **LOUISIANA POLLUTANT DISCHARGE ELIMINATION SYSTEM (LPDES)**  Annual Wetland System Monitoring Report  for Cycle Year 4  *Due each year by* ***April 28th*** |

**FACILITY INFORMATION**

|  |  |
| --- | --- |
| **Facility Name:** Lorna Putnam-Duhon | **Wetland Name:** [Wetland] |
| **Facility Mailing Address:**  Click here to enter text.  Click here to enter text. | **Permit Number: LA**Click here to enter text. |
| **Agency Interest (AI) Number:** [AI] |
| **Cycle Year:** [Cycle Year] |  |
| **Year Date Range:** [Year Range] | **Report Date:** |

*\*\*\*\*****NOTE:*** *Extra rows and columns have been added to the tables throughout this report for facilities that have more than four sites. Fill in additional site names as appropriate.* ***USE THE SITE NUMBERS ASSIGNED IN YOUR PERMIT FOR ALL TABLES.****\*\*\*\**

**ABOVE-GROUND PRODUCTIVITY**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Wetland Area** | **Ephemeral Production1**  **(g/m2/yr)** | **Perennial Production2**  **(g/m2/yr)** | **End-of-Season Live Biomass3**  **(g/m2/yr)** | **Aboveground**  **NPP4**  **(g/m2/yr)** |
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1Ephemeral Productivity = litter (leaf and fruit) fall, *only applies to forested wetlands.*

2Perennial Productivity = stem growth, *only applies to forested wetlands.*

3End-of-Season Live Biomass (EOSL), *only applies to marshes.*

4 Aboveground Net Primary Production (NPP) = the sum of ephemeral and perennial production in forested wetlands and EOSL for marshes.

**Statistical Analysis:**

1. **Show the results of the statistical test comparing the Wetland Areas for ephemeral, perennial, EOSL, and aboveground NPP (as applicable). Describe the statistical test performed and reasoning for choosing the test. The results should include the sample size and P value obtained.**

Click here to enter text.

**Productivity Statistical Analysis (con’d):**

1. **Has there been a significant difference (*p< 0.05*) between any of the wetland areas for:**

**Ephemeral Production (*forested only*)  Yes  No**

**Perennial Production (*forested only*)  Yes  No**

**EOSL (*marshes only*)  Yes  No**

**Aboveground NPP  Yes  No**

1. **If yes, please explain the significant differences observed and outline any corrective actions taken, if needed.**

Click here to enter text.

**ABOVE-GROUND PRODUCTIVITY**

Insert a graph showing the NPP of each wetland site. The graph should span the time from the original LPDES permit approval of the assimilation wetland to the present. The X-axis will be Year and the Y-axis will be NPP.

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**WATER LEVEL MEASUREMENTS (surface water)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Month/Year** | **Monthly Surface Water Level**  **(cm)** | | | | | | | |
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**Provide a summary of the overall water depth for one year.**

**WATER LEVEL MEASUREMENTS (surface water)**

**Attach graphs for each wetland site.**

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**NUTRIENTS I and II (surface water)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Parameter** | **Assimilation Area Loading Rate (g/m2/yr)** | | | | | | | |
| **Total Nitrogen (TN) Loading Rate** |  | | | | | | | |
| **Total Phosphorus (TP) Loading Rate** |  | | | | | | | |
|  | **Nutrient Species Annual Mean (mg/L)** | | | | | | | |
|  |  |  |  |  |  |  |  |  |
| **NUTRIENTS I** | | | | | | | | |
| **Total Kjeldahl Nitrogena (TKN)** |  |  |  |  |  |  |  |  |
| **Total Phosphorusa (TP)** |  |  |  |  |  |  |  |  |
| **NUTRIENTS II** | | | | | | | | |
| **Ammonia Nitrogena (NH3-N)** |  |  |  |  |  |  |  |  |
| **Nitrate-Nitrite Nitrogena**  **(NO3+NO2-N)** |  |  |  |  |  |  |  |  |
| **PhosphatePhosphorusa (PO4-P)** |  |  |  |  |  |  |  |  |

**a** If the analytical result is below the laboratory detection level, include the detection level in the results (e.g., <0.5 mg/L).

**Loading Rates:**

Click here to enter text.

**If the value for TN is greater than 15 g/m2/yr or the value for TP is greater than 4 g/m2/yr, provide an explanation of the reason that it occurred and how it will be addressed (refer to Other Conditions Paragraph of permit).**

**Statistical Analysis:**

Click here to enter text.

1. **Show the results of the statistical test comparing the wetland sites for each parameter above (excluding the loading rates). Describe the statistical test performed and reasoning for choosing the test. The results should include the sample size and P value obtained.**

**NUTRIENTS I and II (surface water)**

1. **Has there been a significant difference (*p< 0.05*) between any of the wetland areas for:**

**TKN  Yes  No PO4-P  Yes  No**

**NH3-N  Yes  No TP  Yes  No**

**NO3+NO2-N  Yes  No**

1. **If yes, please explain the significant differences observed and outline any corrective actions taken, if needed.**

Click here to enter text.

**OTHER PARAMETERS (surface water)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **PARAMETER** | ***In Situ* Parameter Annual Mean** | | | | | | | |
|  |  |  |  |  |  |  |  |
| **Biochemical Oxygen Demand (BOD5) (mg/L)** |  |  |  |  |  |  |  |  |
| **Total Suspended Solids (TSS) (mg/L)** |  |  |  |  |  |  |  |  |
| **pH (s.u.)** |  |  |  |  |  |  |  |  |
| **Dissolved Oxygen (DO) (mg/L)** |  |  |  |  |  |  |  |  |
| **Salinity (ppt)** |  |  |  |  |  |  |  |  |
| **Temperature (oC)** |  |  |  |  |  |  |  |  |

\* If the analytical result is below the detection level, include the detection level in the results (example: <0.5 mg/L).

**Statistical Analysis:**

Click here to enter text.

1. **Show the results of the statistical test comparing the wetland sites for each parameter above. Describe the statistical test performed and reasoning for choosing the test. The results should include the sample size and P value obtained.**
2. **Has there been a significant difference (*p< 0.05*) between any of the wetland areas for:**

**BOD5  Yes  No DO  Yes  No**

**TSS  Yes  No Salinity  Yes  No**

**pH  Yes  No Temperature  Yes  No**

Click here to enter text.

1. **If yes, please explain the significant differences observed and outline any corrective actions taken, if needed.**

**NUTRIENTS I and II (sediment)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Parameter** | **Nutrient Species Annual Mean (mg/kg)** | | | | | | | |
|  |  |  |  |  |  |  |  |
| **NUTRIENTS I** | | | | | | | | |
| **Total Kjeldahl Nitrogena (TKN)** |  |  |  |  |  |  |  |  |
| **Total Phosphorusa (TP)** |  |  |  |  |  |  |  |  |
| **NUTRIENTS II** | | | | | | | | |
| **Ammonia Nitrogena (NH3-N)** |  |  |  |  |  |  |  |  |
| **Nitrate-Nitrite Nitrogena**  **(NO3+NO2-N)** |  |  |  |  |  |  |  |  |
| **PhosphatePhosphorusa (PO4-P)** |  |  |  |  |  |  |  |  |

**a** If the analytical result is below the laboratory detection level, include the detection level in the results (e.g., <0.5 mg/kg).

**Statistical Analysis:**

Click here to enter text.

1. **Show the results of the statistical test comparing the wetland sites for each parameter above. Describe the statistical test performed and reasoning for choosing the test. The results should include the sample size and P value obtained.**
2. **Has there been a significant difference (*p< 0.05*) between any of the wetland areas for:**

**TKN  Yes  No PO4-P  Yes  No**

**NH3-N  Yes  No TP  Yes  No**

**NO3+NO2-N  Yes  No**

1. **If yes, please explain the significant differences observed and outline any corrective actions taken, if needed.**

Click here to enter text.

**NUTRIENTS I (flora)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Parameter** | **Nutrient Species Annual Mean (mg/kg)** | | | | | | | |
|  |  |  |  |  |  |  |  |
| **Total Kjeldahl Nitrogena (TKN)** |  |  |  |  |  |  |  |  |
| **Total Phosphorusa (TP)** |  |  |  |  |  |  |  |  |

**a** If the analytical result is below the laboratory detection level, include the detection level in the results (e.g., <0.5 mg/kg).

**Statistical Analysis:**

Click here to enter text.

1. **Show the results of the statistical test comparing the wetland sites for each parameter above. Describe the statistical test performed and reasoning for choosing the test. The results should include the sample size and P value obtained.**
2. **Has there been a significant difference (*p< 0.05*) between any of the wetland areas for:**

**TKN  Yes  No TP  Yes  No**

1. **If yes, please explain the significant differences observed and outline any corrective actions taken, if needed.**

Click here to enter text.

**METALS (surface water)**

Please refer to your permit as to whether arsenic, iron, magnesium, or mercury is required to sampling. Iron and magnesium are slowly being replaced with arsenic and mercury.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Parameter** | **Metal Species Annual Mean (mg/L)** | | | | | | | |
|  |  |  |  |  |  |  |  |
| **Arsenica (As)** |  |  |  |  |  |  |  |  |
| **Cadmiuma (Cd)** |  |  |  |  |  |  |  |  |
| **Chromiuma (Cr)** |  |  |  |  |  |  |  |  |
| **Coppera (Cu)** |  |  |  |  |  |  |  |  |
| **Irona (Fe)** |  |  |  |  |  |  |  |  |
| **Leada (Pb)** |  |  |  |  |  |  |  |  |
| **Magnesiuma (Mg)** |  |  |  |  |  |  |  |  |
| **Mercurya (Hg)** |  |  |  |  |  |  |  |  |
| **Nickela (Ni)** |  |  |  |  |  |  |  |  |
| **Silvera (Ag)** |  |  |  |  |  |  |  |  |
| **Seleniuma (Se)** |  |  |  |  |  |  |  |  |
| **Zinca (Zn)** |  |  |  |  |  |  |  |  |

**a** If the analytical result is below the laboratory detection level, include the detection level in the results (e.g., <0.5 mg/L).

**Statistical Analysis:**

Click here to enter text.

1. **Show the results of the statistical test comparing the wetland sites for each parameter above. Describe the statistical test performed and reasoning for choosing the test. The results should include the sample size and P value obtained.**
2. **Has there been a significant difference (*p< 0.05*) between any of the wetland areas for:**

**As  Yes  No Cu  Yes  No Mg  Yes  No Ag  Yes  No**

**Cd  Yes  No Fe  Yes  No Hg  Yes  No Se  Yes  No**

**Cr  Yes  No Pb  Yes  No Ni  Yes  No Zn  Yes  No**

1. **If yes, please explain the significant differences observed and outline any corrective actions taken, if needed.**

Click here to enter text.

**METALS (sediment)**

Please refer to your permit as to whether arsenic, iron, magnesium, or mercury is required to sampling. Iron and magnesium are slowly being replaced with arsenic and mercury.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Parameter** | **Metal Species Annual Mean (mg/kg)** | | | | | | | |
|  |  |  |  |  |  |  |  |
| **Arsenica (As)** |  |  |  |  |  |  |  |  |
| **Cadmiuma (Cd)** |  |  |  |  |  |  |  |  |
| **Chromiuma (Cr)** |  |  |  |  |  |  |  |  |
| **Coppera (Cu)** |  |  |  |  |  |  |  |  |
| **Irona (Fe)** |  |  |  |  |  |  |  |  |
| **Leada (Pb)** |  |  |  |  |  |  |  |  |
| **Magnesiuma (Mg)** |  |  |  |  |  |  |  |  |
| **Mercurya (Hg)** |  |  |  |  |  |  |  |  |
| **Nickela (Ni)** |  |  |  |  |  |  |  |  |
| **Silvera (Ag)** |  |  |  |  |  |  |  |  |
| **Seleniuma (Se)** |  |  |  |  |  |  |  |  |
| **Zinca (Zn)** |  |  |  |  |  |  |  |  |

**a** If the analytical result is below the laboratory detection level, include the detection level in the results (e.g., <0.5 mg/kg).

**Statistical Analysis:**

Click here to enter text.

1. **Show the results of the statistical test comparing the wetland sites for each parameter above. Describe the statistical test performed and reasoning for choosing the test. The results should include the sample size and P value obtained.**
2. **Has there been a significant difference (*p< 0.05*) between any of the wetland areas for:**

**As  Yes  No Cu  Yes  No Mg  Yes  No Ag  Yes  No**

**Cd  Yes  No Fe  Yes  No Hg  Yes  No Se  Yes  No**

**Cr  Yes  No Pb  Yes  No Ni  Yes  No Zn  Yes  No**

1. **If yes, please explain the significant differences observed and outline any corrective actions taken, if needed.**

Click here to enter text.

**METALS (flora)**

Please refer to your permit as to whether arsenic, iron, magnesium, or mercury is required to sampling. Iron and magnesium are slowly being replaced with arsenic and mercury.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Parameter** | **Metal Species Annual Mean (mg/kg)** | | | | | | | |
|  |  |  |  |  |  |  |  |
| **Arsenica (As)** |  |  |  |  |  |  |  |  |
| **Cadmiuma (Cd)** |  |  |  |  |  |  |  |  |
| **Chromiuma (Cr)** |  |  |  |  |  |  |  |  |
| **Coppera (Cu)** |  |  |  |  |  |  |  |  |
| **Irona (Fe)** |  |  |  |  |  |  |  |  |
| **Leada (Pb)** |  |  |  |  |  |  |  |  |
| **Magnesiuma (Mg)** |  |  |  |  |  |  |  |  |
| **Mercurya (Hg)** |  |  |  |  |  |  |  |  |
| **Nickela (Ni)** |  |  |  |  |  |  |  |  |
| **Silvera (Ag)** |  |  |  |  |  |  |  |  |
| **Seleniuma (Se)** |  |  |  |  |  |  |  |  |
| **Zinca (Zn)** |  |  |  |  |  |  |  |  |

**a** If the analytical result is below the laboratory detection level, include the detection level in the results (e.g., <0.5 mg/kg).

**Statistical Analysis:**

Click here to enter text.

1. **Show the results of the statistical test comparing the wetland sites for each parameter above. Describe the statistical test performed and reasoning for choosing the test. The results should include the sample size and P value obtained.**
2. **Has there been a significant difference (*p< 0.05*) between any of the wetland areas for:**

**As  Yes  No Cu  Yes  No Mg  Yes  No Ag  Yes  No**

**Cd  Yes  No Fe  Yes  No Hg  Yes  No Se  Yes  No**

**Cr  Yes  No Pb  Yes  No Ni  Yes  No Zn  Yes  No**

1. **If yes, please explain the significant differences observed and outline any corrective actions taken, if needed.**

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**FLORA SPECIES DIVERSITY (flora)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Site** | **Species** | **Species Classification** | | | | |
| **# individuals** | **Relative Density** | **Relative Dominance** | **Relative Frequency** | **Importance Value** |
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**FLORA SPECIES DIVERSITY (flora)**

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| **Type** |  | |  | |  | |  | |  | |  | |  | |
| **Species** | **% cover** | **# individuals** | **% cover** | **# individuals** | **% cover** | **# individuals** | **% cover** | **# individuals** | **% cover** | **# individuals** | **% cover** | **# individuals** | **% cover** | **# individuals** |
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| **Bare ground/mudflat** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Open water** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Species Richness** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

**FLORA SPECIES DIVERSITY (flora)**

Provide a discussion of flora species diversity. Forested sites will include both species classification and % whole cover measurements, while marsh sites will only include % whole cover. The discussion should focus on differences and/or similarities amongst the near, mid, out, reference, and any other sites as well as any changes from previous measures, if present.

Click here to enter text.

**ACCRETION**

Provide the results of the accretion rate for the past five years. Indicate how the measurement was taken (e.g. feldspar or elevation table). If accretion measurements were unable to be taken, provide an explanation for the reason why and a plan on describing how this will be rectified.

Click here to enter text.

**ADAPTIVE MANAGEMENT**

Provide a narrative of any adaptive management practices used during the reporting year. Examples include, but are not limited to, a discussion of the discharge pattern, use of water control structures, extension of water distribution systems, nutria control, etc.

**Adaptive Management Plan Certification:** I certify that the Plan was reviewed and it adequately distributes the effluent in a manner that maximizes the assimilation potential and the productivity of the assimilation area and allows for dry periods, where feasible, to mimic the natural flooding and non-flooding conditions found in wetlands.

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**Signature of Responsible Official Date of Signature**