Table 2. The values of NSE, R2, and PBIAS during calibration and validation of the SWAT model.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variable |  | Calibration | | |  | Validation | | |
|  |  | NSE | R2 | PBIAS |  | NSE | R2 | PBIAS |
| Flow |  | 0.63 | 0.68 | -1.52 |  | 0.71 | 0.74 | 3.52 |
| Sediment |  | 0.59 | 0.67 | -12.87 |  | 0.58 | 0.79 | 33.96 |
| Total Phosphorus |  | 0.62 | 0.69 | 26.99 |  | 0.62 | 0.78 | 38.33 |

Table 3. Dominant land-use (%) and area of each subwatershed (km2) identified as CSA based on sediment and TP.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Dominant land-use (%) | | | | |  |  |
| Subwatershed | Cropland | Grassland | Woodland | Pasture | Urban |  | Area (km2) |
| 1 | 54 | 14 | 26 | 1 | 4 |  | 2.45 |
| 2 | 66 | 9 | 11 | 9 | 5 |  | 0.97 |
| 7 | 71 | 7 | 19 | 1 | 3 |  | 2.63 |
| 9 | 36 | 22 | 29 | 3 | 7 |  | 2.61 |
| 10 | 57 | 11 | 17 | 5 | 9 |  | 3.50 |
| 16 | 36 | 35 | 13 | 10 | 6 |  | 2.51 |

Table 4. Percentage sediment and TP load of the total subwatershed load along with the corresponding hydrologic soil group in croplands in the subwatersheds identified as CSAs of sediment and TP.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Subwatershed | Hydrological Soil Group | Area (%) | Sediment load (%) | TP (%) |
| 1 | B | 3.6 | 0.7 | 0.9 |
|  | D | 96.4 | 99.3 | 99.1 |
| 2 | B | 14.3 | 6.3 | 4.7 |
|  | D | 85.7 | 93.7 | 95.3 |
| 7 | B | 18.7 | 7.3 | 8.1 |
|  | D | 81.3 | 92.7 | 91.9 |
| 9 | B | 40.4 | 20.7 | 23.3 |
|  | D | 59.6 | 79.3 | 76.7 |
| 10 | B | 22.5 | 8.5 | 10.2 |
|  | C | 4.1 | 2.5 | 2.4 |
|  | D | 73.4 | 89.1 | 87.4 |
| 16 | B | 34.7 | 10.5 | 15.8 |
|  | D | 65.3 | 89.5 | 84.2 |

Table 5. Sediment and TP load at the subwatershed and watershed level after BMP implementation scenario along with the percentage of the total watershed area targeted for BMPs.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Location | No-Till Short-Term | | No-Till Long-Term | | Conversion to CRP grasslands Short-Term | | Conversion to CRP grasslands Long-Term | | Watershed Area Targeted for BMPs (%) |
|  | Sediment Reduction (%) | TP Reduction (%) | Sediment Reduction (%) | TP Reduction (%) | Sediment Reduction (%) | TP Reduction (%) | Sediment Reduction (%) | TP Reduction (%) |  |
| Subwatershed 1 | 22 | 21 | 20 | 14 | 99 | 84 | 96 | 66 | 2.7 |
| Subwatershed 2 | 22 | 22 | 20 | 19 | 98 | 86 | 95 | 80 | 1.3 |
| Subwatershed 7 | 25 | 22 | 21 | 15 | 99 | 88 | 97 | 69 | 3.7 |
| Watershed Outlet | 2 | 3 | 4 | 2 | 9 | 15 | 6 | 8 | - |