**Table S1.** River typologies according to the Spanish Royal Decree, RD 817/2015, on water policy and number of river reaches in good and poor status in each river typology with water conductivity measures considered in this study. \*SAICA = Automatic Water Quality Information System

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **River typology** | **River typology code** | **River length\* (km)** | **Spatial analysis: Number of water conductivity measures** | **Temporal analysis: Number of SAICA stations** |
| Rivers in Tajo and Guadiana siliceous plains  “Ríos de llanuras silíceas del Tajo y Guadiana” | R-T01 | 3218.526 | 42  (12 good / 30 poor) | 5  (1 good / 4 poor) |
| Rivers in the Guadalquivir depression  “Ríos de la depresión del Guadalquivir” | R-T02 | 949.345 | 23  (23 poor) | 5  (5 poor) |
| Rivers in siliceous peneplains of the Northern Plateau  “Ríos de las penillanuras silíceas de la Meseta Norte” | R-T03 | 1116.344 | 20  (20 poor) |  |
| Mineralised rivers in the Northern Plateau  “Ríos mineralizados de la Meseta Norte” | R-T04 | 3131.621 | 59  (6 good / 53 poor) | 3  (3 poor) |
| Manchegan rivers  “Ríos manchegos” | R-T05 | 1726.942 | 7  (1 good / 6 poor) | 3  (3 poor) |
| Siliceous rivers in Sierra Morena piedmont  “Ríos silíceos del piedemonte de Sierra Morena” | R-T06 | 1092.924 | 14  (6 good / 8 poor) | 1  (1 poor) |
| Low altitude mineralised Mediterranean rivers  “Ríos mineralizados mediterráneos de baja altitud” | R-T07 | 1423.585 | 25  (10 good / 15 poor) | 1  (1 poor) |
| Rivers of low siliceous Mediterranean mountain  “Ríos de baja montaña mediterránea silícea” | R-T08 | 5303.898 | 67  (26 good / 41 poor) | 4  (1 good / 3 poor) |
| Mineralised rivers of low Mediterranean mountain  “Ríos mineralizados de baja montaña mediterránea” | R-T09 | 8956.741 | 178  (73 good / 105 poor) | 5  (2 good / 3 poor) |
| Mediterranean rivers with karstic influence  “Ríos mediterráneos con influencia cárstica” | R-T10 | 278.138 | 19  (15 good / 4 poor) |  |
| Siliceous Mediterranean mountain rivers  “Ríos de montaña mediterránea silícea” | R-T11 | 3106.968 | 87  (42 good / 45 poor) |  |
| Calcareous Mediterranean mountain rivers  “Ríos de montaña mediterránea calcárea” | R-T12 | 9980.957 | 251  (150 good / 101 poor) | 8  (4 good / 4 poor) |
| Heavily mineralised Mediterranean rivers  “Ríos mediterráneos muy mineralizados” | R-T13 | 948.704 | 16  (4 good / 12 poor) |  |
| Low altitude Mediterranean river axes  “Ejes mediterráneos de baja altitud” | R-T14 | 562.827 | 7  (4 good / 3 poor) | 2  (2 poor) |
| Poorly mineralised continental Mediterranean river axes  “Ejes mediterráneos-continentales poco mineralizados” | R-T15 | 2582.399 | 76  (27 good / 49 poor) | 14  (3 good / 11 poor) |
| Mineralised continental Mediterranean river axes  “Ejes mediterráneos continentales mineralizados” | R-T16 | 1635.140 | 41  (13 good / 28 poor) | 8  (8 poor) |
| Large Mediterranean river axes  “Grandes ejes en ambiente mediterráneo” | R-T17 | 1532.399 | 30  (8 good / 22 poor) | 16  (7 good / 9 poor) |
| Coastal Mediterranean rivers  “Ríos costeros mediterráneos” | R-T18 | 1051.027 | 26  (12 good / 14 poor) |  |
| Tinto River  “Río Tinto” | R-T19 | 96.286 | 2  (2 poor) |  |
| Odiel River  “Río Odiel” | R-T19bis | 201.490 | 5  (5 poor) |  |
| Rivers in humid Baetic highlands  “Ríos de serranías béticas húmedas” | R-T20 | 389.752 | 15  (9 good / 6 poor) |  |
| Siliceous Cantabric-Atlantic rivers  “Ríos cántabro-atlánticos silíceos” | R-T21 | 3543.028 | 133  (103 good / 30 poor) |  |
| Calcareous Cantabric-Atlantic rivers  “Ríos cántabro-atlánticos calcáreos” | R-T22 | 850.679 | 41 (35 good / 6 poor) |  |
| Basque-Pyrenaic rivers  “Ríos vasco-pirenaicos” | R-T23 | 426.094 | 19 (14 good / 5 poor) |  |
| Gredos-Béjar Georges  “Gargantas de Gredos-Béjar” | R-T24 | 614.119 | 13  (7 good / 6 poor) | 1  (1 poor) |
| Humid siliceous mountain rivers  “Ríos de montaña húmeda silícea” | R-T25 | 2515.162 | 67  (34 good / 33 poor) | 2  (2 poor) |
| Humid calcareous mountain rivers  “Ríos de montaña húmeda calcárea” | R-T26 | 3126.748 | 93  (66 good / 27 poor) | 4  (2 good / 2 poor) |
| High mountain rivers  “Ríos de alta montaña” | R-T27 | 1774.924 | 59  (42 good / 17 poor) |  |
| Main siliceous Cantabric-Atlantic river axes  “Ejes fluviales principales cántabro-atlánticos silíceos” | R-T28 | 637.989 | 18  (11 good / 7 poor) | 5  (5 good) |
| Main calcareous Cantabric-Atlantic river axes  “Ejes fluviales principales cántabro-atlánticos calcáreos” | R-T29 | 234.117 | 10  (10 good) | 4  (4 good) |
| Coastal Cantabric-Atlantic rivers  “Ríos costeros cántabro-atlánticos” | R-T30 | 785.178 | 37  (30 good / 7 poor) |  |
| Small siliceous Cantabric-Atlantic river axes  “Pequeños ejes cántabro-atlánticos silíceos” | R-T31 | 708.014 | 41  (33 good / 8 poor) | 3  (1 good / 2 poor) |
| Small calcareous Cantabric-Atlantic river axes  “Pequeños ejes cántabro-atlánticos calcáreos” | R-T32 | 2429.997 | 24  (21 good / 3 poor) | 2  (2 good) |

\*Length of the Spanish river network used in the study

\*\* Typologies T04 and T20 were not included in the ANOVA test as, after removing outliers, these typologies only had 5 or less river reaches in both good and poor ecological status.