Ignasi Arranz, Bertrand Fournier, Nigel P. Lester, Brian J. Shuter, and Pedro R. Peres-Neto. Species compositions mediate biomass conservation: the case of lake fish communities. Ecology.

Appendix S12. Influence of angling pressure on biomass conservation

Overall, BIOCON values exhibited a significant but weak (adjusted R2=0.039) negative correlation with angling pressure. After controlling for environmental effects, a significant weak positive influence was detected. After controlling for environment and species compositions (either with presence-absence or biomass data or both), no significant relationship with angling pressure was identified. Since angling may affect biomass levels in exploited populations but, in Ontario, does not reach levels that would affect species presence – absence data, the (BIOCON vs Env + PA + Angling) model should provide the most reliable assessment of the influence of angling pressure on our data set. From this set of results, we concluded that data on angling pressure provides no additional information on variation in BIOCON values, over and above that provided by data on environmental factors and species composition data.

**Table S1.** Regression model for Angling.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Regression (BIOCON vs Angling)** | |  |  |  |  |  |  |
| N = | 639 |  |  |  |  |  |  |
| R2 = | 0.040 |  |  |  |  |  |  |
| Adjusted R2 = | 0.039 |  |  |  |  |  |  |
| Residual standard error = | 0.273 |  |  |  |  |  |  |
| **Variable** | **Label** | **Std. Value** | **SE(Std. Value)** | **b** | **SE(b)** | **t(632)** | ***p*-value** |
| Intercept |  |  |  | -0.92041 | 0.02 | -47.3 | 0.0000 |
| ***Angling*** | ***log10(AP+1)*** | **-0.20** | **0.04** | **-0.12314** | **0.02** | **-5.2** | **0.0000** |

## Table S2. Regression model for Environment + Angling.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Regression (BIOCON vs Env + Angling)** | | |  |  |  |  |  |
| N = | 639 |  |  |  |  |  |  |
| R2 = | 0.296 |  |  |  |  |  |  |
| Adjusted R2 = | 0.289 |  |  |  |  |  |  |
| Residual standard error = | 0.235 |  |  |  |  |  |  |
| **Variable** | **Label** | **Std. Value** | **SE(Std. Value)** | **b** | **SE(b)** | **t(632)** | ***p*-value** |
| Intercept |  |  |  | -1.065 | 0.080 | -13.316 | 0.000 |
| Mean air temperature | MAT | -0.425 | 0.054 | -0.068 | 0.009 | -7.915 | 0.000 |
| Surface area | log10(AREA) | 0.141 | 0.038 | 0.059 | 0.016 | 3.685 | 0.000 |
| Mean depth | log10(DEPMN) | 0.245 | 0.042 | 0.212 | 0.036 | 5.820 | 0.000 |
| Diss. Org. Carbon | DOC | 0.189 | 0.045 | 0.015 | 0.004 | 4.155 | 0.000 |
| Conductivity | log10(COND) | -0.174 | 0.037 | -0.145 | 0.031 | -4.649 | 0.000 |
| ***Angling*** | ***log10(AP+1)*** | **0.188** | **0.048** | **0.115** | **0.029** | **3.937** | **0.000** |

## Table S3. Regression model for Environment + Species PA + Angling.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Regression (BIOCON vs Env + PA + Angling)** | | |  |  |  |  |  |
| N = | 639 |  |  |  |  |  |  |
| R2 = | 0.494 |  |  |  |  |  |  |
| Adjusted R2 = | 0.473 |  |  |  |  |  |  |
| Residual standard error = | 0.202 |  |  |  |  |  |  |
| **Variable** | **Label** | **Std. Value** | **SE(Std. Value)** | **b** | **SE(b)** | **t(632)** | ***p*-value** |
| Intercept |  |  |  | -0.892 | 0.090 | -9.939 | 0.000 |
| ***Angling*** | ***log10(AP+1)*** | **0.048** | **0.044** | **0.029** | **0.027** | **1.094** | **0.274** |
| Mean air temperature | MAT | -0.241 | 0.070 | -0.038 | 0.011 | -3.445 | 0.001 |
| Surface area | log10(AREA) | 0.005 | 0.042 | 0.002 | 0.018 | 0.126 | 0.900 |
| Mean depth | log10(DEPMN) | 0.203 | 0.048 | 0.176 | 0.041 | 4.250 | 0.000 |
| Diss. Org. Carbon | DOC | 0.061 | 0.043 | 0.005 | 0.003 | 1.424 | 0.155 |
| Conductivity | log10(COND) | -0.136 | 0.037 | -0.113 | 0.031 | -3.712 | 0.000 |
| CPA1 | CPA1 | -0.370 | 0.053 | -0.332 | 0.048 | -6.945 | 0.000 |
| CPA2 | CPA2 | -0.093 | 0.053 | -0.101 | 0.058 | -1.745 | 0.081 |
| CPA3 | CPA3 | -0.011 | 0.048 | -0.016 | 0.067 | -0.232 | 0.817 |
| CPA4 | CPA4 | -0.214 | 0.032 | -0.371 | 0.055 | -6.707 | 0.000 |
| CPA5 | CPA5 | 0.093 | 0.032 | 0.193 | 0.066 | 2.931 | 0.004 |
| CPA6 | CPA6 | 0.105 | 0.031 | 0.225 | 0.066 | 3.403 | 0.001 |
| CPA7 | CPA7 | 0.099 | 0.029 | 0.229 | 0.068 | 3.370 | 0.001 |
|  | (ignored 13 more) | |  |  |  |  |  |

## Table S4. Regression model for Environment + Species Biomass + Angling.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Regression (BIOCON vs Env+Bio+Angling)** | | |  |  |  |  |  |
| N = | 639 |  |  |  |  |  |  |
| R2 = | 0.769 |  |  |  |  |  |  |
| Adjusted R2 = | 0.755 |  |  |  |  |  |  |
| Residual standard error = | 0.138 |  |  |  |  |  |  |
| **Variable** | **Label** | **Std. Value** | **SE (Std. Value)** | **b** | **SE(b)** | **t(632)** | ***p*-value** |
| Intercept | Intercept |  |  | -1.126 | 0.064 | -17.688 | 0.000 |
| ***Angling*** | ***log10(AP+1)*** | **-0.030** | **0.030** | **-0.018** | **0.019** | **-0.978** | **0.329** |
| Mean air temperature | MAT | 0.003 | 0.048 | 0.001 | 0.008 | 0.067 | 0.946 |
| Surface area | log10(AREA) | 0.037 | 0.029 | 0.015 | 0.012 | 1.283 | 0.200 |
| Mean depth | log10(DEPMN) | 0.069 | 0.037 | 0.060 | 0.032 | 1.884 | 0.060 |
| Diss.Org. Carbon | DOC | 0.051 | 0.030 | 0.004 | 0.002 | 1.686 | 0.092 |
| Conductivity | log10(COND) | 0.007 | 0.026 | 0.006 | 0.022 | 0.282 | 0.778 |
|  | CBio1 | -0.503 | 0.035 | -0.434 | 0.030 | -14.371 | 0.000 |
|  | CBio2 | 0.413 | 0.032 | 0.394 | 0.031 | 12.749 | 0.000 |
|  | CBio3 | 0.256 | 0.032 | 0.318 | 0.040 | 7.979 | 0.000 |
|  | CBio4 | -0.071 | 0.029 | -0.107 | 0.043 | -2.452 | 0.015 |
|  | CBio5 | 0.174 | 0.019 | 0.317 | 0.035 | 9.042 | 0.000 |
|  | CBio6 | 0.277 | 0.020 | 0.529 | 0.037 | 14.114 | 0.000 |
|  | CBio7 | 0.058 | 0.020 | 0.120 | 0.041 | 2.911 | 0.004 |
|  | CBio8 | -0.107 | 0.020 | -0.231 | 0.044 | -5.282 | 0.000 |
|  | CBio9 | -0.102 | 0.020 | -0.234 | 0.045 | -5.225 | 0.000 |
|  | CBio10 | -0.161 | 0.019 | -0.378 | 0.046 | -8.299 | 0.000 |
|  | CBio11 | -0.041 | 0.019 | -0.111 | 0.053 | -2.100 | 0.036 |
|  | CBio12 | -0.046 | 0.020 | -0.128 | 0.056 | -2.271 | 0.024 |
|  | CBio13 | 0.120 | 0.021 | 0.351 | 0.061 | 5.723 | 0.000 |
|  | CBio14 | 0.035 | 0.020 | 0.102 | 0.058 | 1.755 | 0.080 |
|  | CBio15 | 0.067 | 0.019 | 0.205 | 0.060 | 3.436 | 0.001 |
|  | (ignored 41 more) |  |  |  |  |  |  |