**Supplementary Information for:**

**Secondary production of macroinvertebrates as indicators of success in stream rehabilitation**

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# Sampling and processing of macroinvertebrates

Macroinvertebrate samples were collected from the three reaches for two years post-rehabilitation 2015 and 2016; 8 intervals per year (Table S1). Biotope-specific three replicate macroinvertebrate samples were collected from all available biotopes within the reaches. To avoid pseudo-replication and to best represent the entire study reach, samples were taken from three separate patches of each existing biotope (those covering in total ≥1% area of the riverbed within a given reach) on each sampling visit. The patches were chosen so as to be spatially separated across the reach wherever possible.

Samples were collected using a Surber sampler (500 µm mesh size and 0.09 m2). The area within the frame was disturbed for 30 s to dislodge all animals in the substrate, and the animals were subsequently swept by the water into the net for collection. In-stream macrophyte stems and leaves within the sampler frame were enclosed in the net and then cut off from the plant as close to the substratum as possible, and then invertebrates on them disturbed into the net. In-stream macroalgae within the sampler frame were enclosed in the net and then the invertebrates were sampled. Flow was created manually in slow flowing biotopes (marginal plant and silt) to assist sample collection.

Samples were then placed in 2.5 litre plastic buckets, labelled, and returned to the laboratory. They were stored in a cold room at 4 °C and sorted into major groups within 48 h. Invertebrate specimens were placed in 50 ml sealable plastic sample tubes containing 75% ethanol and kept for later taxonomic identification, counting and measurement in the laboratory.

Specimens were identified to genus level and counted (individual sample-1) using standard UK lotic invertebrate taxonomic keys and guidance books. The population of each genus was divided into different size-classes based on either body length or head-capsule width. Each genus’ dry-mass (mg Dry Mass, mgDM) was then estimated according to size-specific mass regressions (Table S2).

Reach-level values of density (individual sample-1) and biomass (mgDM sample-1) for each genus were compiled into a ‘genus list’ calculated according to the relative coverage area of each sampled in-stream biotope in each reach (Kedzierski & Smock, 2001; Pedersen *et al.*, 2007; Jähnig *et al.*, 2010), and then pooled to show values per square metre before estimating secondary production. To do this, one of the three replicate genus lists from each sampled biotope was selected randomly, then the density and biomass values were multiplied by the corresponding coverage % of the streambed for that biotope. The values for each genus were then summed across biotopes to give one replicate genus list containing density and biomass values for each genus at the reach-level. This step was repeated two more times using the other sampling replicates to create second and third replicate genus lists. Thus, each reach had three separate replicates of genus-specific density and biomass values per sampling visit (Al-Zankana, 2018).

Table S1. Macroinvertebrate sampling visit dates used for calculation of secondary production for each study reach.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Year | Season | Rehabilitated reach | Degraded reach | Natural reach |
| 2015 | Winter | 19th January | 20th January | 20th January |
| 16th February | 17th February | 17th February |
| Spring | 16th March | 17th March | 17th March |
| 13th April | 14th April | 14th April |
| 11th May | 12th May | 12th May |
| Summer | 7th Jun | 9th Jun | 10th Jun |
| 4th July | 5th July | 6th July |
| 3rd August | 4th August | 5th August |
| Number of days | | 196 days | 196 days | 197 days |
| 2016 | Winter | 19th January | 20th January | 20th January |
| 17th February | 18th February | 18th February |
| Spring | 14th March | 14th March | 16th March |
| 12th April | 13th April | 13th April |
| 17th May | 19th May | 21st May |
| Summer | 22nd Jun | 24th Jun | 24th Jun |
| 25th July | 27th July | 29th July |
| 3rd August | 4th August | 4th August |
| Number of days | | 197 days | 197 days | 197 days |

Table S2. Species names for macroinvertebrates, dry mass conversions and linear measures used: DM = dry mass; HW = head capsule width; BL = body length; SW = shell width; TL = first thoracic segment length; PL = pleotelson length. y, dependent variable, x, independent variable. The source of each equation is denoted by a number indicating the reference used: 1) Poepperl (1998), 2) Baumgärtner & Rothhaupt (2003), 3) Calow (1975), 4) Meyer (1989), 5) Cameron *et al.* (1979) (Cited in Benke *et al.* (1999), 6) Edwards *et al.* (2009), 7) Benke *et al.* (1999), 8) Towers *et al.* (1994), 9) Burgherr & Meyer (1997), 10) Smock (1980), 11) Cianciara (1980).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Taxa | Level | y | x | Regression equation | R2 | Reference |
| *Gammarus pulex* | *Gammarus pulex* | logDM(mg) | logTL(mm) | y=0.8238+2.9642x | 0.997 | 1 |
| *Asellus aquaticus* | *Asellus aquaticus* | logDM(mg) | logPL(mm) | y=-0.4211+2.4870x | 0.994 | 1 |
| *Asellus meridianus* | *Asellus aquaticus* | logDM(mg) | logPL(mm) | y=-0.4211+2.4870x | 0.994 | 1 |
| *Lymnaea (Radix) peregra* | *Radix peregra* | lnDM(mg) | lnSW(mm) | y=-3.63+3.15x | 0.96 | 2 |
| *Lymnaea glabra* | *Radix peregra* | lnDM(mg) | lnSW(mm) | y=-3.63+3.15x | 0.96 | 2 |
| *Lymnaea stagnalis* | *Radix peregra* | lnDM(mg) | lnSW(mm) | y=-3.63+3.15x | 0.96 | 2 |
| *Lymnaea truncatula* | *Radix peregra* | lnDM(mg) | lnSW(mm) | y=-3.63+3.15x | 0.96 | 2 |
| *Valvata piscinalis* | Gastropoda | lnDM(mg) | lnSW(mm) | y=-3.95+3.30x | 0.95 | 2 |
| *Valvata macrostoma* | Gastropoda | lnDM(mg) | lnSW(mm) | y=-3.95+3.30x | 0.95 | 2 |
| *Valvata cristata* | Gastropoda | lnDM(mg) | lnSW(mm) | y=-3.95+3.30x | 0.95 | 2 |
| *Viviparus fasciatus* | Gastropoda | lnDM(mg) | lnSW(mm) | y=-3.95+3.30x | 0.95 | 2 |
| *Potamopyrgus antipodarum* | *Potamopyrgus antipodarum* | logDM(mg) | logSL(mm) | y=-0.8166+2.3761x | 0.997 | 1 |
| *Bithynia tentaculata* | *Bithynia tentaculata* | lnDM(mg) | lnSW(mm) | y=-4.54+3.66x | 0.95 | 2 |
| *Bithynia leachii* | *Bithynia tentaculata* | lnDM(mg) | lnSW(mm) | y=-4.54+3.66x | 0.95 | 2 |
| *Physa fontinalis* | Gastropoda | lnDM(mg) | lnSW(mm) | y=-3.95+3.30x | 0.95 | 2 |
| *Theodoxus fluviatilis* | Gastropoda | lnDM(mg) | lnSW(mm) | y=-3.95+3.30x | 0.95 | 2 |
| *Planorbis contortus* | *Planorbis contortus* | logDW(mg) | logSL(mm) | y=-2.331+2x | 0.69 | 3 |
| *Planorbis corneus* | *Planorbis contortus* | logDW(mg) | logSL(mm) | y=-2.331+2x | 0.69 | 3 |
| *Planorbis crista* | *Planorbis contortus* | logDW(mg) | logSL(mm) | y=-2.331+2x | 0.69 | 3 |
| *Ancylus fluviatilis* | *Ancylus fluviatilis* | lnDM(mg) | lnSL(mm) | y=-3.3319+3.1403x | 0.98 | 4 |
| *Ancylus lacustris* | *Ancylus fluviatilis* | lnDM(mg) | lnSL(mm) | y=-3.3319+3.1403x | 0.98 | 4 |
| *Pisidium* sp. | *Pisidium* sp. | logDM(mg) | logBL(mm) | y=-0.9722+2.9132x | 0.999 | 1 |
| *Sphaerium* sp. | *Sphaerium corneum* | logDM(mg) | logBL(mm) | y=-1.5407+3.4024x | 0.994 | 1 |
| *Anadonta* sp. | *Anodonta cataracta* | DM(mg) | BL(mm) | y=0.0038x2.915 |  | 5 |
| *Glossiphonia complanata* | *Glossiphonia complanata* | lnDM(mg) | lnBL(mm) | y=-2.12+2x | 0.64 | 6 |
| *Glossiphonia heteroclita* | *Glossiphonia complanata* | lnDM(mg) | lnBL(mm) | y=-2.12+2x | 0.64 | 6 |
| *Theromyzon tessulatum* | Leech | lnDM(mg) | lnBL(mm) | y=-2.69+2.11x | 0.62 | 6 |
| *Helobdella stagnalis* | *Helobdella stagnalis* | lnDM(mg) | lnBL(mm) | y=-2.74+2.12x | 0.62 | 6 |
| *Erpobdella octoculata* | *Erpobdella octoculata* | lnDM(mg) | lnBL(mm) | y=-3.20+2.22x | 0.78 | 6 |
| *Erpobdella testacea* | *Erpobdella octoculata* | lnDM(mg) | lnBL(mm) | y=-3.20+2.22x | 0.78 | 6 |
| *Polycelis tenuis* | *Polycelis sp.* | lnDM(mg) | lnBL(mm) | y=-3.6344+1.8545x | 0.62 | 4 |
| *Polycelis felina* | *Polycelis sp.* | lnDM(mg) | lnBL(mm) | y=-3.6344+1.8545x | 0.62 | 4 |
| *Polycelis nigra* | *Polycelis sp.* | lnDM(mg) | lnBL(mm) | y=-3.6344+1.8545x | 0.62 | 4 |
| *Dugesia lugubris* | *Dugesia tigrina* | DM(mg) | BL(mm) | y=0.0089x2.145 | 0.81 | 7 |
| Elmidae | Elmidae (Larvae) | lnDM(mg) | lnBL(mm) | y=-6.078+3.092x | 0.83 | 8 |
| Scirtidae | Coleoptera (larvae) | lnDM(mg) | lnBL(mm) | y=-4.4518+2.4724x | 0.57 | 4 |
| Helophoridae | Coleoptera (larvae) | lnDM(mg) | lnBL(mm) | y=-4.4518+2.4724x | 0.57 | 4 |
| Helodidae | Coleoptera (larvae) | lnDM(mg) | lnBL(mm) | y=-4.4518+2.4724x | 0.57 | 4 |
| Haliplidae | Coleoptera (larvae) | lnDM(mg) | lnBL(mm) | y=-4.4518+2.4724x | 0.57 | 4 |
| Hydraenidae | Coleoptera (larvae) | lnDM(mg) | lnBL(mm) | y=-4.4518+2.4724x | 0.57 | 4 |
| Dytiscidae | Coleoptera (larvae) | lnDM(mg) | lnBL(mm) | y=-4.4518+2.4724x | 0.57 | 4 |
| Hydrophilidae | Coleoptera (larvae) | lnDM(mg) | lnBL(mm) | y=-4.4518+2.4724x | 0.57 | 4 |
| Gyrinidae | Coleoptera (larvae) | lnDM(mg) | lnBL(mm) | y=-4.4518+2.4724x | 0.57 | 4 |
| Curculionidae | Coleoptera (larvae) | lnDM(mg) | lnBL(mm) | y=-4.4518+2.4724x | 0.57 | 4 |
| Muscidae | Diptera (larvae) | lnDM(mg) | lnBL(mm) | y=-6.21+2.52x | 0.83 | 9 |
| Psychodidae | Diptera (larvae) | lnDM(mg) | lnBL(mm) | y=-6.21+2.52x | 0.83 | 9 |
| Ptychopteridae | Diptera (larvae) | lnDM(mg) | lnBL(mm) | y=-6.21+2.52x | 0.83 | 9 |
| Dixidae | Diptera (larvae) | lnDM(mg) | lnBL(mm) | y=-6.21+2.52x | 0.83 | 9 |
| Tabanidae | Diptera (larvae) | lnDM(mg) | lnBL(mm) | y=-6.21+2.52x | 0.83 | 9 |
| Stratiomyidae | Diptera (larvae) | lnDM(mg) | lnBL(mm) | y=-6.21+2.52x | 0.83 | 9 |
| Empididae | Diptera (larvae) | lnDM(mg) | lnBL(mm) | y=-6.21+2.52x | 0.83 | 9 |
| Tipulidae | *Tipula abdominalis* (Say) | lnW(mg) | lnBL(mm) | y=-5.30+2.36x | 0.93 | 10 |
| Pediciidae | *Dicranota* sp. | lnDM(mg) | lnBL(mm) | y=-5.53+1.91x | 0.54 | 9 |
| Simuliidae | *Simulium* sp. | lnDM(mg) | lnBL(mm) | y=-5.84+2.49x | 0.83 | 9 |
| Limoniidae | *Tipula abdominalis* (Say) | lnW(mg) | lnBL(mm) | y=-5.298+2.36x | 0.93 | 10 |
| Ceratopogonidae | Ceratopogonidae | lnDM(mg) | lnBL(mm) | y=-9.3774+3.7948x | 0.84 | 4 |
| Chironominae | Chironomidae | lnDM(mg) | lnHW(mm) | y=0.77+2.41x | 0.60 | 9 |
| Prodiamesinae | Chironomidae | lnDM(mg) | lnHW(mm) | y=0.77+2.41x | 0.60 | 9 |
| Orthocladiinae | Chironomidae | lnDM(mg) | lnHW(mm) | y=0.77+2.41x | 0.60 | 9 |
| Diamesinae | Chironomidae | lnDM(mg) | lnHW(mm) | y=0.77+2.41x | 0.60 | 9 |
| Tanypodinae | Tanypodinae | lnDM(mg) | lnHW(mm) | y=1.37+3.25x | 0.41 | 9 |
| *Tinodes* sp. | *Tinodes waeneri* | logDM(mg) | logHW(mm) | y=-0.1593+5.4712x | 0.97 | 1 |
| *Lype* sp. | *Lype phaeopa* | logDM(mg) | logHW(mm) | y=-0.2519+1.8162x | 0.994 | 1 |
| *Hydropsyche* sp. | *Hydropsyche* spp. | lnDM(mg) | lnHW(mm) | y=0.2080+2.8606x | 0.83 | 4 |
| *Hydropsyche siltatay* | *Hydropsyche* spp. | lnDM(mg) | lnHW(mm) | y=0.2080+2.8606x | 0.83 | 4 |
| *Hydropsyche instabilus* | *Hydropsyche* spp. | lnDM(mg) | lnHW(mm) | y=0.2080+2.8606x | 0.83 | 4 |
| *Halesus radiatus.* | Limnephilidae | lnDM(mg) | lnHW(mm) | y=0.4109+3.1678x | 0.83 | 4 |
| *Halesus digitatus* | Limnephilidae | lnDM(mg) | lnHW(mm) | y=0.4109+3.1678x | 0.83 | 4 |
| *Limnephilus lunatus.* | Limnephilidae | lnDM(mg) | lnHW(mm) | y=0.4109+3.1678x | 0.83 | 4 |
| *Limnephilus nigriceps* | Limnephilidae | lnDM(mg) | lnHW(mm) | y=0.4109+3.1678x | 0.83 | 4 |
| *Limnephilus flavicornis* | Limnephilidae | lnDM(mg) | lnHW(mm) | y=0.4109+3.1678x | 0.83 | 4 |
| *Anabolia nervosa* | Limnephilidae | lnDM(mg) | lnHW(mm) | y=0.4109+3.1678x | 0.83 | 4 |
| *Chaetopteryx villosa* | Limnephilidae | lnDM(mg) | lnHW(mm) | y=0.4109+3.1678x | 0.83 | 4 |
| *Glyphotaelius pellucidus* | Limnephilidae | lnDM(mg) | lnHW(mm) | y=0.4109+3.1678x | 0.83 | 4 |
| *Phacopteryx brevipennis* | Limnephilidae | lnDM(mg) | lnHW(mm) | y=0.4109+3.1678x | 0.83 | 4 |
| *Micropterna sp.* | Limnephilidae | lnDM(mg) | lnHW(mm) | y=0.4109+3.1678x | 0.83 | 4 |
| *Potamophylax* sp. | *Potamophylax* sp. | lnDM(mg) | lnHW(mm) | y=0.6272+3.6358x | 0.77 | 4 |
| *Molanna albicans* | *Molanna angustata* | logDM(mg) | logHW(mm) | y=0.6120+5.1315x | 0.92 | 1 |
| *Mystacides longicornis(azurea)* | *Mystacides* sp. | logDM(mg) | logHW(mm) | y=0.5689+3.5539x | 0.92 | 1 |
| *Ceraclea* sp. | *Ceraclea* sp. | lnDM(mg) | lnHW(mm) | y=1.00+3.52x | 0.94 | 2 |
| *Athripsodes cinereus* | *Athripsodes* sp. | logDM(mg) | logHW(mm) | y=0.6221+4.0212x | 0.96 | 1 |
| *Athripsodes aterrimus* | *Athripsodes* sp. | logDM(mg) | logHW(mm) | y=0.6221+4.0212x | 0.96 | 1 |
| *Crunoecia irrorata* | Tricoptera, cased | lnDM(mg) | lnHW(mm) | y=1.30+3.62x | 0.82 | 2 |
| *Lepidostoma hirtum* | Tricoptera, cased | lnDM(mg) | lnHW(mm) | y=1.30+3.62x | 0.82 | 2 |
| *Lasiocephala basalis* | Tricoptera, cased | lnDM(mg) | lnHW(mm) | y=1.30+3.62x | 0.82 | 2 |
| *Sericostoma personatum* | *Sericostoma* spp. | lnDM(mg) | lnHW(mm) | y=0.1692+2.9153x | 0.89 | 4 |
| *Agapetus fuscipes* | *Glossosoma* spp. | lnDM(mg) | lnHW(mm) | y=0.96+2.98x | 0.71 | 4 |
| *Hydroptilidae* | Tricoptera, cased | lnDM(mg) | lnBL(mm) | y=-4.48+2.57x | 0.80 | 2 |
| *Plectrocnemia conspersa* | *Polycentropus flavomaculatus* | lnDM(mg) | lnHW(mm) | y=-0.51+3.03x | 0.87 | 2 |
| *Polycentropus flavomaculatus* | *Polycentropus flavomaculatus* | lnDM(mg) | lnHW(mm) | y=-0.51+3.03x | 0.87 | 2 |
| *Apatania muliebris* | Tricoptera, cased | lnDM(mg) | lnHW(mm) | y=1.30+3.62x | 0.82 | 2 |
| *Beraea pullata* | Tricoptera, cased | lnDM(mg) | lnHW(mm) | y=1.30+3.62x | 0.82 | 2 |
| *Silo pallipes* | Goeridae | lnDM(mg) | lnHW(mm) | y=0.8613+3.5755x | 0.75 | 4 |
| *Goera pilosa* | Goeridae | lnDM(mg) | lnHW(mm) | y=0.8613+3.5755x | 0.75 | 4 |
| *Rhyacophila* sp. | *Rhyacophila* spp. | lnDM(mg) | lnHW(mm) | y=0.5327+2.9503x | 0.73 | 4 |
| *Rhyacophila dorsalis* | *Rhyacophila* spp. | lnDM(mg) | lnHW(mm) | y=0.5327+2.9503x | 0.73 | 4 |
| *Rhyacophila septensipis* | *Rhyacophila* spp. | lnDM(mg) | lnHW(mm) | y=0.5327+2.9503x | 0.73 | 4 |
| *Baetis rhodani* | *Baetis* spp. | lnDM(mg) | lnBL(mm) | y=-5.55+2.67x | 0.91 | 9 |
| *Cloeon dipterum* | *Cloeon dipterum* | DM(mg) | BL(mm) | y=0.0010x3.68 | 0.95 | 11 |
| *Procloeon pennulatum* | *Cloeon dipterum* | DM(mg) | BL(mm) | y=0.0010x3.68 | 0.95 | 11 |
| *Centroptilum luteolum* | *Centroptilum luteolum* | logDM(mg) | logHW(mm) | y=-0.4286+1.7023x | 0.97 | 1 |
| *Caenis macrura* | *Caenis* sp*.* | logDM(mg) | logHW(mm) | y=-0.4873+2.8496x | 0.996 | 1 |
| *Caenis luctuosa* | *Caenis* sp. | logDM(mg) | logHW(mm) | y=-0.4873+2.8496x | 0.996 | 1 |
| *Ephemera vulgata* | *Ephemera danica* | logDM(mg) | logHW(mm) | y=-0.1908+3.3883x | 0.996 | 1 |
| *Ephemera danica* | *Ephemera danica* | logDM(mg) | logHW(mm) | y=-0.1908+3.3883x | 0.996 | 1 |
| *Serratella ignita* | *Serratella* sp. | DM(mg) | BL(mm) | y=0.0088x2.584 | 0.76 | 7 |
| *Habrophlebia fusca* | Leptophlebiidae | lnDM(mg) | lnBL(mm) | y=-8.62+4.20x | 0.93 | 9 |
| *Paraleptophlebia werneri* | Leptophlebiidae | lnDM(mg) | lnBL(mm) | y=-8.62+4.20x | 0.93 | 9 |
| *Potamanthus luteus* | Ephemeroptera | lnDM(mg) | lnBL(mm) | y=-4.85+2.74x | 0.77 | 2 |
| *Nemurella pictetii* | *Nemura* sp. | lnDM(mg) | lnBL(mm) | y=-4.1057+1.9858x | 0.67 | 4 |
| *Nemurella cambrica* | *Nemura* sp. | lnDM(mg) | lnBL(mm) | y=-4.1057+1.9858x | 0.67 | 4 |
| *Amphinemura* sp. | *Amphinemura* spp. | lnDM(mg) | lnBL(mm) | y=-5.90+3.32x | 0.93 | 9 |
| *Sialis lutaria* | *Sialis lutaria* | logDM(mg) | logHW(mm) | y=-0.2908+2.9758x | 0.996 | 1 |
| *Calopteryx virgo* | *Calopteryx* sp. | DM(mg) | BL(mm) | y=0.0050x2.742 | 0.83 | 7 |
| *Platycnemis pennipes* | Odonata | lnW(mg) | lnBL(mm) | y=-4.269+2.78x | 0.94 | 10 |
| *Coenagrion* sp. | Coenagrionidae | DM(mg) | BL(mm) | y=0.0051x2.785 | 0.83 | 7 |
| *Sigara* sp. | *Sigara sp.* | lnW(mg) | lnBL(mm) | y=-3.270+2.53x | 0.80 | 10 |
| *Velia caprai* | Hemiptera | lnW(mg) | lnBL(mm) | y=-3.461+2.40x | 0.93 | 10 |
| *Lebirtia porosa* | Acari | lnDM(mg) | lnBW(mm) | y=-1.69+1.69x | 0.55 | 2 |
| *Hygrobates* sp. | Acari | lnDM(mg) | lnBW(mm) | y=-1.69+1.69x | 0.55 | 2 |
| *Sperchon* sp. | Acari | lnDM(mg) | lnBW(mm) | y=-1.69+1.69x | 0.55 | 2 |
| *diplodontus despiciens* | Acari | lnDM(mg) | lnBW(mm) | y=-1.69+1.69x | 0.55 | 2 |
| *Limnesia* sp | Acari | lnDM(mg) | lnBW(mm) | y=-1.69+1.69x | 0.55 | 2 |
| *Arrenurus truncatellus* | Acari | lnDM(mg) | lnBW(mm) | y=-1.69+1.69x | 0.55 | 2 |
| *Mideopsis orbicularis* | Acari | lnDM(mg) | lnBW(mm) | y=-1.69+1.69x | 0.55 | 2 |

# Estimation of macroinvertebrates secondary production

To assess secondary production of any macroinvertebrate genus in the control reach in 2015 for example, we had 8 sampling months (visits), and 3 replicates per visit. One replicate of each visit was selected randomly (without replacement) and pooled across the eight visits to calculate one estimate of secondary production for that genus. The same procedure was repeated two more times to calculate the other two estimates of the reach’s in 2015 for the given macroinvertebrate genus.

All genus-specific secondary production values in a reach were summed to obtain the total secondary production for that reach. The same steps were repeated for thesecond post-rehabilitation year.

All genus-specific secondary production values in a reach were also assigned to one of eight functional feeding groups (FFG) according to Tachet *et al.* (2010). Each genus was coded using a “fuzzy coding” approach on the basis of the extent to which it displayed the traits. genus affinities for each group were fuzzy coded from zero (no affinity) to three (strong affinity). This approach allows taxa to exhibit feeding groups to different degrees, and avoids the obligate assignment of a taxon to a single FFG which may lead to inaccurate characterisation of biological or ecological taxa profiles (Chevene *et al.*, 1994). Total secondary production and FFG production (mgDM m-2 year-1) were calculated separately for each study reach.

Table S3. Main PERMANOVA results for channel morphological variables among the study reaches.

|  |
| --- |
| **Morphological variables**  Source df SS S Pseudo-F P(perm) Unique perms  Period 1 10.04 10.04 36.39 **0.0002** 9936  Reach 2 153.66 76.83 278.36 **0.0001** 9984  Period x Reach 2 19.97 9.98 36.19 **0.0001** 9946  Residual 12 3.31 0.27  Total 17 187 |

Table S4. Summary of the PERMANOVA pair-wise analysis for between reach differences in channel morphological variables. Bold font indicates significant (P<0.05) differences.

|  |  |
| --- | --- |
| Period | PERMANOVA results |
| 2015 | Reaches t P(perm)  Control, Reference 14.850 **0.0001**  Control, Rehabilitated 13.416 **0.0001**  Reference, Rehabilitated 12.653 **0.0001** |
| 2016 | Reaches t P(perm)  Control, Reference 14.393 **0.0002**  Control, Rehabilitated 13.587 **0.0001**  Reference, Rehabilitated 7.0166 **0.001** |

Table S5. Summary of PERMANOVA pair-wise analysis of temporal differences in channel morphological variables for each reach separately. Bold font indicates significant (P<0.05) differences.

|  |  |
| --- | --- |
| Reach | Period t P(perm) |
| Control | 2015, 2016 0.589 0.368 |
| Reference | 2015, 2016 1.541 0.642 |
| Rehabilitated | 2015, 2016 7.641 **0.001** |

Table S6. Summary of results from Principal Components Analysis (PCA) of channel morphology metrics and biotope composition between the study reaches.

| Eigenvalues  PC Eigenvalues %Variation Cumulative % Variation  1 6.62 60.2 60.2  2 2.92 26.6 86.8 |
| --- |
| Eigenvectors  (Coefficients in the linear combinations of variables making up PCs)  Variable PC1 PC2  Number of Biotopes 0.381 -0.051  SWI-Biotope 0.547 -0.138  Cobbles% 0.261 0.355  Gravel% 0.536 0.243  Sand% -0.317 -0.006  Silt% -0.579 -0.113  Tree-root% 0.250 -0.384  Marginal plants% 0.552 -0.203  Leaf-letter% 0.536 -0.259  Macroalgae% 0.299 0.218  Submerged Fine-leaved macrophytes% -0.193 -0.161 |

Table S7. Permutational ANOVA results for macroinvertebrate total production, macroinvertebrate taxonomic group production and macroinvertebrate functional feeding group production.

|  |
| --- |
| **Total Production**  Source df SS S Pseudo-F P(perm) Unique perms  Reach 2 4.599 2.299 149.102 0.0001 9953  Period 1 0.339 0.339 22.019 0.0002 9805  ReachxPeriod 2 0.941 0.470 30.508 **0.0001** 9951  Residual 12 0.185 0.015  Total 17 6.065 |
| **Malacostraca production**  Source df SS S Pseudo-F P(perm) Unique perms  Reach 2 11.273 5.636 56.489 0.0001 9950  Period 1 1.596 1.596 15.996 0.0003 9841  ReachxPeriod 2 3.833 1.916 19.211 **0.0001** 9948  Residual 12 1.197 0.099  Total 17 17.899 |
| **Gastropoda production**  Source df SS S Pseudo-F P(perm) Unique perms  Reach 2 4.858 2.429 54.783 0.0012 9959  Period 1 0.256 0.256 5.785 0.0373 9945  ReachxPeriod 2 1.129 0.564 12.731 **0.0051** 9985  Residual 12 0.532 0.044  Total 17 6.776 |
| **Bivalvia production**  Source df SS S Pseudo-F P(perm) Unique perms  Reach 2 19.744 9.871 26.804 0.0013 9918  Period 1 0.665 0.665 1.807 0.1922 9980  ReachxPeriod 2 3.576 1.788 4.855 **0.0251** 9905  Residual 12 4.419 0.368  Total 17 28.405 |
| **Hirudinea production**  Source df SS S Pseudo-F P(perm) Unique perms  Reach 2 0.612 0.306 1.280 0.3392 9905  Period 1 0.037 0.037 0.155 0.7051 9985  ReachxPeriod 2 0.101 0.050 0.212 0.8123 9941  Residual 12 2.870 0.239  Total 17 3.621 |
| **Oligochaeta production**  Source df SS S Pseudo-F P(perm) Unique perms  Reach 2 1.325 0.662 11.902 0.0044 9958  Period 1 0.608 0.608 10.936 0.0063 9905  ReachxPeriod 2 0.096 0.048 0.869 0.4777 9941  Residual 12 0.667 0.055  Total 17 2.698 |
| **Turbellaria production**  Source df SS S Pseudo-F P(perm) Unique perms  Reach 2 5.445 2.722 38.636 0.0013 9970  Period 1 0.118 0.113 1.610 0.2192 9948  ReachxPeriod 2 0.271 0.139 1.972 0.1713 9978  Residual 12 0.845 0.070  Total 17 6.682 |
| **Coleoptera production**  Source df SS S Pseudo-F P(perm) Unique perms  Reach 2 0.090 0.045 16.171 0.0009 9951  Period 1 0.000 0.000 0.126 0.7336 9847  ReachxPeriod 2 0.019 0.009 3.450 0.0624 9960  Residual 12 0.033 0.002  Total 17 0.144 |
| **Diptera production**  Source df SS S Pseudo-F P(perm) Unique perms  Reach 2 52.823 26.411 51.957 0.0002 9951  Period 1 0.200 0.200 0.393 0.5648 9876  ReachxPeriod 2 0.179 0.089 0.176 0.8477 9953  Residual 12 6.101 0.508  Total 17 59.303 |
| **Chironomidae production**  Source df SS S Pseudo-F P(perm) Unique perms  Reach 2 1.559 0.779 44.681 0.0003 9963  Period 1 0.680 0.680 38.972 0.0001 9837  ReachxPeriod 2 1.724 0.862 49.397 **0.0001** 9955  Residual 12 0.209 0.017  Total 17 4.173 |
| **EPT production**  Source df SS S Pseudo-F P(perm) Unique perms  Reach 2 41.846 20.923 137.513 0.0001 9944  Period 1 6.738 6.738 44.292 0.0001 9823  ReachxPeriod 2 8.530 4.265 28.034 **0.0002** 9956  Residual 12 1.825 0.152  Total 17 58.941 |
| **Megaloptera production**  Source df SS S Pseudo-F P(perm) Unique perms  Reach 2 14.421 7.210 3.438 0.0698 9963  Period 1 0.129 0.129 0.061 0.8046 9828  ReachxPeriod 2 0.635 0.317 0.151 0.8559 9951  Residual 12 25.164 2.097  Total 17 40.351 |
| **Odonata production**  Source df SS S Pseudo-F P(perm) Unique perms  Reach 2 13.167 6.583 131.363 0.0001 9948  Period 1 1.622 1.622 32.379 0.0004 9862  ReachxPeriod 2 3.614 1.807 36.065 **0.0001** 9958  Residual 12 0.601 0.050  Total 17 19.006 |
| **Arachnida production**  Source df SS S Pseudo-F P(perm) Unique perms  Reach 2 0.603 0.301 11.926 0.0026 9955  Period 1 1.474 1.474 58.269 0.0002 9815  ReachxPeriod 2 1.270 0.635 25.103 **0.0001** 9940  Residual 12 0.303 0.025  Total 17 3.651 |
| **Absorber production**  Source df SS S Pseudo-F P(perm) Unique perms  Reach 2 0.319 0.159 4.427 0.0136 9956  Period 1 0.025 0.025 0.697 0.4775 9879  ReachxPeriod 2 0.019 0.009 0.267 0.7983 9951  Residual 12 0.433 0.036  Total 17 0.797 |
| **Deposit-feeder production**  Source df SS S Pseudo-F P(perm) Unique perms  Reach 2 1.020 0.510 21.606 0.0004 9954  Period 1 5.753 5.753 0.002 0.9634 9867  ReachxPeriod 2 0.077 0.038 1.632 0.2326 9959  Residual 12 0.283 0.023  Total 17 1.381 |
| **Shredder production**  Source df SS S Pseudo-F P(perm) Unique perms  Reach 2 9.781 4.890 133.903 0.0001 9955  Period 1 0.761 0.761 20.848 0.0011 9834  ReachxPeriod 2 1.776 0.888 24.322 **0.0001** 9954  Residual 12 0.438 0.036  Total 17 12.751 |
| **Scraper production**  Source df SS S Pseudo-F P(perm) Unique perms  Reach 2 9.944 4.972 115.862 0.0001 9945  Period 1 0.665 0.665 15.503 0.0025 9834  ReachxPeriod 2 2.223 1.112 25.904 **0.0001** 9957  Residual 12 0.515 0.042  Total 17 13.349 |
| **Filter-feeder production**  Source df SS S Pseudo-F P(perm) Unique perms  Reach 2 0.871 0.435 33.609 0.0001 9964  Period 1 0.233 0.233 18.014 0.0023 9842  ReachxPeriod 2 0.509 0.254 19.647 **0.0002** 9953  Residual 12 0.155 0.012  Total 17 1.771 |
| **Piercer production**  Source df SS S Pseudo-F P(perm) Unique perms  Reach 2 9.810 4.905 20.223 0.0003 9937  Period 1 0.002 0.009 0.008 0.9297 9863  ReachxPeriod 2 0.035 0.017 0.072 0.9354 9959  Residual 12 2.911 0.242  Total 17 12.758 |
| **Predator production**  Source df SS S Pseudo-F P(perm) Unique perms  Reach 2 1.807 0.904 13.434 0.0008 9951  Period 1 0.281 0.282 4.192 0.0667 9867  ReachxPeriod 2 0.650 0.325 4.835 **0.0282** 9961  Residual 12 0.807 0.067  Total 17 3.546 |
| **Parasite production**  Source df SS S Pseudo-F P(perm) Unique perms  Reach 2 11.616 5.807 121.551 0.0001 9951  Period 1 0.662 0.662 13.868 0.0025 9813  ReachxPeriod 2 1.493 0.746 15.632 **0.0009** 9953  Residual 12 0.573 0.047  Total 17 14.345 |

Table S8. Summary of the permutational ANOVA (pair-wise analysis) for spatial differences between the study reaches in total macroinvertebrate production, taxonomic group production and functional feeding group production. Reaches compared during first post-rehabilitation year (2015) and second post-rehabilitation year (2016). Bold font indicates significant (P<0.05) differences.

|  |  |  |
| --- | --- | --- |
| Metrics | Period | ANOVA results |
| Total production | 2015 | Reaches t P(perm)  Control, Reference 12.341 **0.0002**  Control, Rehabilitated 0.119 0.9134  Reference, Rehabilitated 17.993 **0.0001** |
| 2016 | Reaches t P(perm)  Control, Reference 13.933 **0.0002**  Control, Rehabilitated 7.859 **0.0018**  Reference, Rehabilitated 2.665 0.0574 |
| Malacostraca production | 2015 | Reaches t P(perm)  Control, Reference 9.208 **0.0009**  Control, Rehabilitated 1.331 **0.0177**  Reference, Rehabilitated 2.232 0.0946 |
| 2016 | Reaches t P(perm)  Control, Reference 8.646 **0.0013**  Control, Rehabilitated 9.345 **0.0006**  Reference, Rehabilitated 17.993 **0.0062** |
| Gastropoda production | 2015 | Reaches t P(perm)  Control, Reference 8.449 **0.0011**  Control, Rehabilitated 0.023 0.9811  Reference, Rehabilitated 7.148 **0.0022** |
| 2016 | Reaches t P(perm)  Control, Reference 9.673 **0.0012**  Control, Rehabilitated 5.745 **0.0052**  Reference, Rehabilitated 1.450 0.2232 |
| Bivalvia production | 2015 | Reaches t P(perm)  Control, Reference 5.298 **0.0066**  Control, Rehabilitated 0.815 0.4649  Reference, Rehabilitated 3.493 **0.0263** |
| 2016 | Reaches t P(perm)  Control, Reference 5.034 **0.0078**  Control, Rehabilitated 4.719 **0.0132**  Reference, Rehabilitated 2.117 0.1044 |
| Hirudinea production | 2015 | Reaches t P(perm)  Control, Reference 1.867 0.1354  Control, Rehabilitated 0.645 0.5332  Reference, Rehabilitated 0.512 0.6435 |
| 2016 | Reaches t P(perm)  Control, Reference 0.873 0.4374  Control, Rehabilitated 0.036 0.9706  Reference, Rehabilitated 0.753 0.4957 |
| Oligochaeta production | 2015 | Reaches t P(perm)  Control, Reference 6.5204 **0.0041**  Control, Rehabilitated 1.9888 0.1172  Reference, Rehabilitated 0.7034 0.5171 |
| 2016 | Reaches t P(perm)  Control, Reference 4.836 **0.0141**  Control, Rehabilitated 3.305 **0.0332**  Reference, Rehabilitated 2.225 0.0893 |
| Turbellaria production | 2015 | Reaches t P(perm)  Control, Reference 8.240 **0.0021**  Control, Rehabilitated 0.541 0.6213  Reference, Rehabilitated 4.370 **0.0131** |
| 2016 | Reaches t P(perm)  Control, Reference 9.114 **0.0032**  Control, Rehabilitated 3.996 **0.0172**  Reference, Rehabilitated 8.026 **0.0023** |
| Coleoptera production | 2015 | Reaches t P(perm)  Control, Reference 7.114 **0.0042**  Control, Rehabilitated 1.968 0.1243  Reference, Rehabilitated 1.679 0.1684 |
| 2016 | Reaches t P(perm)  Control, Reference 3.011 **0.0352**  Control, Rehabilitated 4.778 **0.0113**  Reference, Rehabilitated 1.708 0.1651 |
| Diptera production | 2015 | Reaches t P(perm)  Control, Reference 4.801 **0.0094**  Control, Rehabilitated 0.926 0.4056  Reference, Rehabilitated 30.203 **0.0001** |
| 2016 | Reaches t P(perm)  Control, Reference 7.247 **0.0010**  Control, Rehabilitated 2.130 0.0967  Reference, Rehabilitated 22.373 **0.0001** |
| Chironomidae production | 2015 | Reaches t P(perm)  Control, Reference 28.956 **0.0001**  Control, Rehabilitated 0.073 0.9452  Reference, Rehabilitated 16.402 **0.0002** |
| 2016 | Reaches t P(perm)  Control, Reference 6.130 **0.0022**  Control, Rehabilitated 7.671 **0.0023**  Reference, Rehabilitated 4.086 **0.0158** |
| EPT production | 2015 | Reaches t P(perm)  Control, Reference 10.726 **0.0009**  Control, Rehabilitated 0.102 0.9234  Reference, Rehabilitated 10.922 **0.0002** |
| 2016 | Reaches t P(perm)  Control, Reference 14.711 **0.0006**  Control, Rehabilitated 12.352 **0.0005**  Reference, Rehabilitated 7.163 **0.0022** |
| Megaloptera production | 2015 | Reaches t P(perm)  Control, Reference 11.893 0.9107  Control, Rehabilitated 1.788 0.1414  Reference, Rehabilitated 3.007 **0.0395** |
| 2016 | Reaches t P(perm)  Control, Reference 0.004 0.9962  Control, Rehabilitated 1.190 0.2946  Reference, Rehabilitated 1.923 0.1227 |
| Odonata production | 2015 | Reaches t P(perm)  Control, Reference 1.471 **0.0418**  Control, Rehabilitated 2.692 0.0501  Reference, Rehabilitated 4.499 **0.0121** |
| 2016 | Reaches t P(perm)  Control, Reference 9.437 **0.0001**  Control, Rehabilitated 12.253 **0.0005**  Reference, Rehabilitated 16.513 **0.0001** |
| Arachnida production | 2015 | Reaches t P(perm)  Control, Reference 0.621 0.5699  Control, Rehabilitated 1.173 0.3097  Reference, Rehabilitated 0.008 0.3733 |
| 2016 | Reaches t P(perm)  Control, Reference 14.711 **0.0006**  Control, Rehabilitated 12.352 **0.0005**  Reference, Rehabilitated 7.163 **0.0022** |
| Absorber production | 2015 | Reaches t P(perm)  Control, Reference 6.419 **0.0026**  Control, Rehabilitated 5.075 **0.0069**  Reference, Rehabilitated 0.218 0.8388 |
| 2016 | Reaches t P(perm)  Control, Reference 1.321 0.2619  Control, Rehabilitated 0.787 0.4718  Reference, Rehabilitated 1.485 0.2102 |
| Deposit-feeder production | 2015 | Reaches t P(perm)  Control, Reference 9.401 **0.0007**  Control, Rehabilitated 1.188 0.3063  Reference, Rehabilitated 3.112 **0.0396** |
| 2016 | Reaches t P(perm)  Control, Reference 3.412 **0.0284**  Control, Rehabilitated 0.137 0.9006  Reference, Rehabilitated 17.798 **0.0001** |
| Shredder production | 2015 | Reaches t P(perm)  Control, Reference 11.836 **0.0003**  Control, Rehabilitated 0.336 0.7516  Reference, Rehabilitated 25.562 **0.0001** |
| 2016 | Reaches t P(perm)  Control, Reference 10.447 **0.0006**  Control, Rehabilitated 6.626 **0.0035**  Reference, Rehabilitated 1.149 0.0943 |
| Scraper production | 2015 | Reaches t P(perm)  Control, Reference 10.728 **0.0004**  Control, Rehabilitated 0.078 0.9461  Reference, Rehabilitated 17.683 **0.0001** |
| 2016 | Reaches t P(perm)  Control, Reference 11.341 **0.0005**  Control, Rehabilitated 6.937 **0.0022**  Reference, Rehabilitated 2.222 0.0982 |
| Filter-feeder production | 2015 | Reaches t P(perm)  Control, Reference 13.028 **0.0002**  Control, Rehabilitated 1.618 0.1804  Reference, Rehabilitated 7.389 **0.0028** |
| 2016 | Reaches t P(perm)  Control, Reference 5.081 **0.0081**  Control, Rehabilitated 5.693 **0.0052**  Reference, Rehabilitated 0.186 0.8592 |
| Piercer production | 2015 | Reaches t P(perm)  Control, Reference 3.178 **0.0321**  Control, Rehabilitated 0.750 0.4881  Reference, Rehabilitated 3.789 **0.0189** |
| 2016 | Reaches t P(perm)  Control, Reference 2.763 **0.0487**  Control, Rehabilitated 2.455 0.0691  Reference, Rehabilitated 3.414 **0.0251** |
| Predator production | 2015 | Reaches t P(perm)  Control, Reference 2.681 **0.0332**  Control, Rehabilitated 0.504 0.6331  Reference, Rehabilitated 3.869 **0.0198** |
| 2016 | Reaches t P(perm)  Control, Reference 4.689 **0.0092**  Control, Rehabilitated 3.783 **0.0188**  Reference, Rehabilitated 0.140 0.8946 |
| Parasite production | 2015 | Reaches t P(perm)  Control, Reference 13.426 **0.0003**  Control, Rehabilitated 0.264 0.8087  Reference, Rehabilitated 13.085 **0.0003** |
| 2016 | Reaches t P(perm)  Control, Reference 6.991 **0.0032**  Control, Rehabilitated 4.786 **0.0092**  Reference, Rehabilitated 1.188 0.0935 |

Table S9. Summary of permutational ANOVA (pair-wise analysis) of temporal differences in total macroinvertebrate production, taxonomic group production and functional feeding group production for each study reach separately. Bold font indicates significant (P<0.05) differences. All contrasts were for the period 2015,2016.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Control reach | Reference reach | Rehabilitated reach |
| Metrics | t *P*(perm) | t *P*(perm) | t *P*(perm) |
| Totalproduction | 0.926 0.3987 | 1.626 0.1782 | 7.969 **0.0011** |
| Malacostraca production | 0.727 0.4972 | 1.335 0.2531 | 5.076 **0.0084** |
| Gastropoda production | 0.763 0.4885 | 1.713 0.1656 | 4.265 **0.0135** |
| Bivalvia production | 0.752 0.4924 | 0.891 0.4142 | 3.259 **0.0357** |
| Hirudinea production | 0.431 0.6933 | 0.484 0.6539 | 0.415 0.7033 |
| Oligochaeta production | 0.487 0.7012 | 2.250 0.0941 | 0.982 0.4221 |
| Turbellaria production | 0.337 0.3421 | 0.696 0.5217 | 0.097 0.9331 |
| Coleoptera production | 0.413 0.7161 | 2.158 0.0913 | 1.484 0.2182 |
| Diptera production | 0.035 0.9741 | 0.593 0.0753 | 2.800 0.0786 |
| Chironomidae production | 0.370 0.7321 | 0.991 0.3856 | 7.921 **0.0017** |
| EPT production | 0.895 0.4289 | 1.176 0.3059 | 9.227 **0.0005** |
| Megaloptera production | 0.296 0.7836 | 0.378 0.7229 | 0.616 0.5728 |
| Odonata production | 1.091 0.3332 | 1.159 0.3078 | 7.433 **0.0018** |
| Arachnida production | 0.497 0.6371 | 1.841 0.8484 | 11.931 **0.0003** |
| Absorber production | 0.237 0.8223 | 0.053 0.9606 | 2.092 0.1065 |
| Deposit-feeder production | 0.231 0.8331 | 0.414 0.1329 | 1.456 0.2171 |
| Shredder production | 0.228 0.8208 | 0.432 0.6927 | 9.108 **0.0013** |
| Scraper production | 0.696 0.5217 | 1.709 0.1615 | 7.712 **0.0017** |
| Filter-feeder production | 1.296 0.2712 | 2.148 0.0986 | 8.406 **0.0014** |
| Piercer production | 0.696 0.5294 | 0.056 0.9521 | 0.253 0.8209 |
| Predator production | 1.254 0.2778 | 1.647 0.1713 | 2.859 **0.0461** |
| Parasite production | 0.673 0.5412 | 0.775 0.4734 | 11.999 **0.0003** |

Table S10. Percentage secondary production contributed by each macroinvertebrate taxonomic group to each study reach’s total production. EPT: Ephemeroptera, Plecoptera, Trichoptera.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Taxonomic groups | Control  2015 | Reference  2015 | Rehabilitated  2015 | Control  2016 | Reference  2016 | Rehabilitated  2016 |
| Malacostraca | 2.5 | 3.2 | 5.6 | 2.4 | 3.3 | 14.4 |
| Gastropoda | 48.6 | 52.0 | 48.3 | 47.2 | 46.5 | 49.2 |
| Bivalvia | 3.8 | 9.3 | 6.4 | 2.9 | 9.9 | 10.3 |
| Hirudinea | 16.6 | 2.8 | 13.4 | 15.7 | 3.5 | 5.6 |
| Oligochaeta | 2.1 | 0.3 | 1.2 | 1.3 | 0.2 | 0.3 |
| Turbellaria | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 |
| Coleoptera | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Diptera | 0.7 | 7.7 | 1.0 | 0.7 | 9.3 | 0.7 |
| Chironomidae | 20.3 | 3.4 | 20.2 | 23.5 | 3.6 | 2.3 |
| EPT | 1.5 | 20.4 | 1.6 | 2.4 | 22.7 | 13.8 |
| Megaloptera | 1.2 | 0.1 | 0.0 | 0.6 | 0.1 | 0.0 |
| Odonata | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.2 |
| Arachnida | 2.7 | 0.7 | 2.1 | 3.2 | 1.0 | 3.1 |

Table S11. Percentage secondary production contributed by each macroinvertebrate feeding group to each study reach’s total production for the first and second post-rehabilitation years.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Feeding groups | Control 2015 | Reference 2015 | Rehabilitated 2015 | Control 2016 | Reference 2016 | Rehabilitated 2016 |
| Absorber | 1.2 | 0.3 | 0.9 | 1.5 | 0.3 | 0.4 |
| Deposit-feeder | 7.4 | 3.6 | 8.4 | 8.3 | 4.2 | 2.9 |
| Shredders | 23.6 | 43.3 | 24.4 | 25.5 | 41.5 | 36.0 |
| Scraper | 19.1 | 34.6 | 18.4 | 18.4 | 31.5 | 29.5 |
| Filter-feeder | 21.9 | 10.1 | 19.7 | 21.6 | 11.7 | 15.2 |
| Piercer | 4.7 | 0.4 | 5.4 | 4.4 | 0.4 | 2.2 |
| Predator | 14.9 | 7.4 | 15.7 | 13.0 | 10.2 | 12.9 |
| Parasite | 7.1 | 0.3 | 7.2 | 7.3 | 0.3 | 0.9 |

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