Table 5. Summary of rates and dimensionless ratios for all consumer-resource pairs. Parameters are as defined in Table 2. Note that organism- and landscape-level quantities are presented with the units in which they were reported in the primary literature, which vary from interaction to interaction. For instance, the “currency” of an interaction could be expressed in individuals or biomass, densities could be areal or volumetric, etc. However, when plugged into the equations in Table 2, the quantities within each row are dimensionally consistent and the units cancel. Abbreviations for units: m = meters, g = grams, s = seconds, min = minutes, h = hours, d = days, mo = months, y = years, ha = hectares, c = consumer individuals, r = resource individuals, mol = molecules, pch = patch, diff = diffusive, dir = directed.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Organism-level | | | | Landscape-level | | | | Consumer timescales | | | | Dimensionless ratios | | | |
| ID | Consumer–resource pair | *s* | 𝜏 | 𝜎 | 𝜂 | *C* | *T* (s) | *L* (m) | *R* | *T*search  (diff, s) | *T*search  (dir, s) | *T*repro.  (s) | *T*cons.  (s) | Fr (diff) | Fr (dir) | Str | Le |
| 1 | Vibrio–Nutrients | 0.01 mm s-1 | 4 s | 5 h | 2.0×104 mol c-1 s-1 | 5290 c mm-3 | 6000 | 0.001 | 3.0×1020 mol mL-1 | 2.5×103 | 100 | 1.8×104 | 2.8×109 | 2.4 | 60.0 | 3.3×10-1 | 2.1×10-6 |
| 2 | Pseudoalteromonas–Nutrients | 8.7×10-5 m s-1 | 0.25 s | 3 h |  | 1.0×104 c mL-1 | 900 | 0.04 | 5.7×10-4 mol L-1 | 8.5×105 | 460 | 1.1×104 | 900 | 1.1×10-3 | 2.0 | 8.3×10-2 | 1.0 |
| 3 | Bosmina–Diatoms | 0.8 mm s-1 | 6.7 s | 12.5 h | 168 r c-1 d-1 | 252 c m-3 | 8.6×104 | 1000 | 21 r mL-1 | 2.3×1011 | 1.3×106 | 4.5×104 | 4.3×107 | 3.7×10-7 | 6.9×10-2 | 1.9 | 2.0×10-3 |
| 4 | Copepods–Phytoplankton layers | 1.42 mm s-1 | 1.25 s | 20 d | 4.0×104 r c-1 d-1 | 2.0×104 c m-3 | 6.1×105 | 4000 | 1000 r mL-1 | 6.4×1012 | 2.8×106 | 1.7×106 | 1.1×105 | 9.5×10-8 | 2.2×10-1 | 3.5×10-1 | 5.6 |
| 5 | Fruit flies–Marula fruit | 30 cm s-1 | 1 s | 15 d | 2×10-6 g c-1 d-1 | 1.0×104 c pch-1 | 7.8×106 | 146 | 14 kg pch-1 | 2.4×105 | 490 | 1.3×106 | 6.1×1010 | 33 | 1.6×104 | 6.0 | 1.3×10-4 |
| 6 | Caterpillar–Kale plants | 0.2 cm s-1 | 6 min | 32 d | 0.41 g c-1 min-1 | 100 c pch-1 | 1.3×107 | 1 | 100 g pch-1 | 690 | 500 | 2.8×106 | 150 | 1.9×104 | 2.6×104 | 4.7 | 8.8×104 |
| 7 | Caddisfly–Periphyton | 50 cm min-1 | 15 s | 1 y | 3.3×10-7 g c-1 h-1 | 70 c m-2 | 1.1×107 | 0.19 | 1.2×10-5 g cm-2 | 35 | 23 | 3.2×107 | 1.9×107 | 3.0×105 | 4.6×105 | 3.3×10-1 | 5.5×10-1 |
| 8 | Bone worms–Whale falls | 10 cm s-1 | 22.2 h | 2 mo |  | 10 c cm-2 | 4.7×1010 | 1.0×104 |  | 1.3×105 | 1.0×105 | 5.2×106 | 3.2×108 | 3.8×105 | 4.7×105 | 9.1×103 | 150 |
| 9 | Green crabs–Cockles | 0.54 cm s-1 | 3.2 s | 3 y | 6.5 r c-1 d-1 | 25 c m-2 | 6.5×106 | 200 | 1×104 r m-2 | 4.3×108 | 3.7×104 | 9.5×107 | 5.3×106 | 1.5×10-2 | 170 | 6.9×10-2 | 1.2 |
| 10 | Desert locust–Vegetation | 10 km h-1 | 2 s | 60 d | 2 g c-1 d-1 | 6.0×107 c km-2 | 1.6×107 | 10 | 1000 kg ha-1 | 6.5 | 3.6 | 5.2×106 | 7.2×104 | 2.4×106 | 4.3×106 | 3.0 | 220 |
| 11 | Dung beetle–Dung | 0.05 m s-1 | 8 s | 6 mo | 0.91 g c-1 min-1 | 1 c pch-1 | 8.7×106 | 32 | 5620 g pch-1 | 5.1×104 | 640 | 1.6×107 | 3.7×105 | 170 | 1.4×104 | 5.6×10-1 | 24.0 |
| 12 | Ctenophores–Copepods | 0.7 cm s-1 | 10 s | 7.75 d | 10 r c-1 h-1 | 50 c m-3 | 4.3×105 | 4000 | 2×104 r m-3 | 3.3×1010 | 5.7×105 | 6.7×105 | 1.4×105 | 1.3×10-5 | 7.6×10-1 | 6.5×10-1 | 3.0 |
| 13 | Beach mouse–Dune seeds | 11.4 km h-1 | 1 s | 26 d | 14 r c-1 d-1 | 8 c ha-1 | 3.2×109 | 15 | 270 r m-2 | 22 | 4.7 | 2.3×106 | 2.1×109 | 1.4×108 | 6.7×108 | 1.4×103 | 1.5 |
| 14 | Chimney swifts–Aerial plankton | 11.3 m s-1 | 2 s | 2 y | 415 r c-1 h | 3.8×10-6 c m-3 | 3600 | 2.5×104 | 0.001 r m-3 | 2.5×106 | 2.2×103 | 6.3×107 | 2.3×103 | 1.5×10-3 | 1.6 | 5.7×10-5 | 1.6 |
| 15 | Northern sea stars–Mussels | 5 cm min-1 | 10 min | 2 y | 2 r c-1 d-1 | 5.5 c m-2 | 2.2×108 | 40 | 3000 r m-2 | 3.8×106 | 4.8×104 | 6.3×107 | 3.2×107 | 57.5 | 4.6×103 | 3.5 | 7.0 |
| 16 | Trout–Zooplankton | 30 cm s-1 | 7 s | 4 y | 0.02 g c-1 s-1 | 3.5×10-3 c m-3 | 1.1×104 | 1000 | 50 g m-3 | 1.6×106 | 3.3×103 | 1.3×108 | 7.1×105 | 6.8×10-3 | 3.2 | 8.6×10-5 | 1.5×10-2 |
| 17 | Red knots–Cockles | 20 m s-1 | 40 s | 2 y | 0.4 mg c-1 s-1 | 1×10-4 c m-2 | 2.2×104 | 1.0×104 | 2 g m-2 | 6.3×103 | 500 | 6.3×107 | 5.0×107 | 3.5 | 43 | 3.4×10-4 | 4.3×10-4 |
| 18 | Red knots–Clams | 20 m s-1 | 40 s | 2 y | 0.4 mg c-1 s-1 | 1×10-4 c m-2 | 2.2×104 | 1000 | 1 g m-2 | 63 | 50 | 6.3×107 | 2.5×107 | 35 | 430 | 3.4×10-4 | 8.6×10-4 |
| 19 | Terns–Forage fishes | 11 m s-1 | 10 s | 4 y | 40 r c-1 d-1 | 0.05 c m-2 | 2.2×104 | 5000 | 100 r m-2 | 2.1×104 | 46 | 1.3×108 | 4.3×106 | 1.1 | 48 | 1.7×10-4 | 5.0×10-3 |
| 20 | Pisaster sea star–Mussels | 1.67 m h-1 | 10 min | 6 y | 80 r c-1 y-1 | 16.5 c m-2 | 2.9×108 | 250 | 250 r m-2 | 4.8×108 | 5.4×105 | 1.9×108 | 6.0×106 | 0.59 | 530 | 1.5 | 48 |
| 21 | Eastern gray squirrel–Acorn | 50 cm s-1 | 10 s | 1.25 y | 6.1×10-3 r c-1 s-1 | 0.03 c pch-1 | 7.8×106 | 8.3 | 1000 r pch-1 | 28 | 17 | 3.9×107 | 2.5×104 | 2.8×105 | 4.7×105 | 0.2 | 310 |
| 22 | Murres–Zooplankton/fish | 20.9 m s-1 | 1 min | 4 y | 700 r c-1 d-1 | 26 c km-2 | 2.9×104 | 5.5×104 | 75 r m-2 | 1.2×105 | 2.6×103 | 1.3×108 | 3.6×108 | 2.5×10-1 | 11 | 2.3×10-4 | 8.1×10-5 |
| 23 | Penguin–Fish school | 1.1 m s-1 | 1 min | 2.5 y | 192 g c-1 d-1 | 4 c pch-1 | 5.0×104 | 250 | 243 kg pch-1 | 860 | 230 | 7.9×107 | 2.7×107 | 59 | 220 | 6.4×10-4 | 1.9×10-3 |
| 24 | Spider monkeys–Fruit trees | 4.8 m min-1 | 5 min | 6.5 y |  |  | 6.0×105 | 45.8 |  | 1.1×103 | 700 | 2.0×108 | 810 | 550 | 860 | 3.0×10-3 | 750 |
| 25 | Beaver–Maple tree | 28 m min-1 | 1 min | 5.4 y | 6.7×10-3 r c-1 s-1 | 2.6 c km-2 | 6.3×109 | 50 | 0.18 r m-2 | 190 | 70 | 1.7×108 | 3.8×107 | 3.3×107 | 9.0×107 | 37.0 | 170 |
| 26 | Mongolian gazelle–Vegetation | 8.2 km d-1 | 1 d | 2 y | 5 g c-1 min-1 | 281 c km-2 | 2.6×106 | 2.0×104 | 20 g m-2 | 5.1×105 | 2.1×105 | 6.3×107 | 8.5×105 | 5.0 | 12 | 4.1×10-2 | 3.0 |
| 27 | Wolf–Caribou | 8.7 km h-1 | 1 h | 22 mo | 0.045 r c-1 d-1 | 9 c pch-1 | 2.3×107 | 2.5×105 | 1000 r pch-1 | 3.0×106 | 6.1×105 | 5.7×107 | 2.1×108 | 7.9 | 39 | 4.1×10-1 | 1.1×10-1 |
| 28 | Fur seals–Pollock | 3.5 m s-1 | 1 min | 4 y | 3 kg c-1 d-1 | 2 c pch-1 | 4.3×104 | 300 | 3 kg pch-1 | 120 | 86 | 1.3×108 | 4.3×104 | 350 | 500 | 3.4×10-4 | 1.0 |
| 29 | Elk–Forest patch | 759 m h-1 | 3 min | 5.7 y | 989 g c-1 d-1 | 0.625 c km-2 | 1.1×1010 | 427 | 245 g m-2 | 2.3×104 | 2.0×103 | 1.8×108 | 3.4×1010 | 4.9×105 | 5.5×106 | 62.0 | 3.3×10-1 |
| 30 | Tuna–Herring | 1.63 m s-1 | 1.8 min | 14 y | 24.6 r c-1 d-1 | 0.54 c m-2 | 4.3×104 | 3.3×104 | 10 r m-2 | 3.8×106 | 2.0×104 | 4.4×108 | 6.5×104 | 1.1×10-2 | 2.1 | 9.8×10-5 | 6.6×10-1 |
| 31 | White sharks–Seals | 1.34 m s-1 | 30 s | 12.3 y | 0.25 r c-1 d-1 | 1 c pch-1 | 300 | 70 | 8 r pch-1 | 91 | 52 | 3.9×108 | 2.8×106 | 3.3 | 5.7 | 7.7×10-07 | 1.1×10-4 |
| 32 | Killer whale–Chinook salmon | 1.6 m s-1 | 1 min | 24 y | 7 r c-1 min-1 | 1.2×10-6 c m-3 | 1200 | 500 | 0.05 n m-3 | 1.6×103 | 310 | 7.6×108 | 3.6×105 | 7.4×10-1 | 3.8 | 1.6×10-6 | 3.4×10-3 |
| 33 | Blue whale–Krill | 3.7 km h-1 | 400 s | 10 y | 105 kg c-1 min-1 | 0.02 c km-2 | 2.2×104 | 7000 | 1 kg m-2 | 1.2×105 | 6.8×103 | 3.2×108 | 2.7×107 | 1.9×10-1 | 3.2 | 6.9×10-5 | 7.9×10-4 |