# Evaluating top-down, bottom-up, and environmental drivers of pelagic food web dynamics along an estuarine gradient

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## Appendix S2: Supplemental data and model tables

Table S1. Variable definitions and temporal extent for the monthly and annual datasets.

| Variable | Monthly years (missing months) | Annual years (missing years) | Definition |
| --- | --- | --- | --- |
| Ammonia | 1995‒2020 (0) | 1980‒2020 (0) | from the Discrete Environmental Monitoring Program (EMP) at DWR - year-round |
| Amphipods catch | 1997‒2020 (18) | 1975‒2020 (1) | from 5 different sources - year-round - see Bashevkin et al. 2022 |
| Amphipods mass | 1997‒2020 (18) | 1975‒2020 (1) | from 5 different sources - year-round - see Bashevkin et al. 2022 |
| Centrarchids DJFMP | 1995‒2020 (3) |  | year-round - beach seines - biomass |
| Cladocera | 1995‒2020 (2) | 1975‒2020 (0) | from 5 different sources - year-round - see Bashevkin et al. 2022 |
| Cladocera catch | 1995‒2020 (2) | 1975‒2020 (0) | from 5 different sources - year-round - see Bashevkin et al. 2022 |
| Cladocera energy | 1995‒2020 (2) | 1975‒2020 (0) | from 5 different sources - year-round - see Bashevkin et al. 2022 |
| Corbicula | 1997‒2020 (18) | 1975‒2020 (1) | from the Environmental Monitoring Program (EMP) Benthic Survey at DWR - year-round |
| Delta smelt BSMT | 1995‒2020 (38) | 1980‒2020 (1) | year-round - midwater trawl - biomass |
| Delta smelt BSOT | 1995‒2020 (18) | 1980‒2020 (0) | year-round - otter trawl - biomass |
| Delta smelt FMWT |  | 1975‒2020 (1) | fall (September - December) - midwater trawl - biomass |
| Delta smelt STN |  | 1975‒2021 (0) | summer (June - August) - townet - biomass |
| Dissolved Inorganic Nitrogen | 1995‒2020 (0) |  | from the Discrete Environmental Monitoring Program (EMP) at DWR - year-round |
| Dissolved Orthophos | 1995‒2020 (0) | 1980‒2020 (0) | from the Discrete Environmental Monitoring Program (EMP) at DWR - year-round |
| Estuarine fishes BSMT | 1995‒2020 (38) | 1980‒2020 (1) | year-round - midwater trawl - biomass of estuarine pelagic forage fishes |
| Estuarine fishes BSOT | 1995‒2020 (18) | 1980‒2020 (0) | year-round - otter trawl - biomass of estuarine pelagic forage fishes |
| Estuarine fishes FMWT |  | 1975‒2020 (1) | fall (September - December) - midwater trawl - biomass of estuarine pelagic forage fishes |
| Estuarine fishes STN |  | 1975‒2021 (0) | summer (June - August) - townet - biomass of estuarine pelagic forage fishes |
| Flow | 1995‒2020 (0) | 1975‒2020 (0) | year-round - mean Delta outflow (water leaving the Delta to the Bay) |
| Herbivorous copepods | 1995‒2020 (2) | 1975‒2020 (0) | from 5 different sources - year-round - see Bashevkin et al. 2022 |
| Herbivorous copepods catch | 1995‒2020 (2) | 1975‒2020 (0) | from 5 different sources - year-round - see Bashevkin et al. 2022 |
| Herbivorous copepods energy | 1995‒2020 (2) | 1975‒2020 (0) | from 5 different sources - year-round - see Bashevkin et al. 2022 |
| Herbivorous zooplankton biomass | 1995‒2020 (2) | 1975‒2020 (0) | summed herbivorous zooplankton biomass |
| Herbivorous zooplankton energy | 1995‒2020 (2) | 1975‒2020 (0) | summed herbivorous zooplankton energy |
| Longfin smelt BSMT | 1995‒2020 (38) | 1980‒2020 (1) | year-round - midwater trawl - biomass |
| Longfin smelt BSOT | 1995‒2020 (18) | 1980‒2020 (0) | year-round - otter trawl - biomass |
| Longfin smelt FMWT |  | 1975‒2020 (1) | fall (September - December) - midwater trawl - biomass |
| Longfin smelt STN |  | 1975‒2021 (0) | summer (June - August) - townet - biomass |
| Marine fishes BSMT | 1995‒2020 (38) | 1980‒2020 (1) | year-round - midwater trawl - biomass |
| Marine fishes BSOT | 1995‒2020 (18) | 1980‒2020 (0) | year-round - otter trawl - biomass |
| Marine fishes FMWT |  | 1975‒2020 (1) | fall (September - December) - midwater trawl - biomass |
| Marine fishes STN |  | 1975‒2021 (0) | summer (June - August) - townet - biomass |
| Mississippi silverside DJFMP | 1995‒2020 (3) | 1976‒2020 (0) | year-round - beach seines - biomass |
| Mysids | 1995‒2020 (2) | 1975‒2020 (0) | from 5 different sources - year-round - see Bashevkin et al. 2022 |
| Mysids catch | 1995‒2020 (2) | 1975‒2020 (0) | from 5 different sources - year-round - see Bashevkin et al. 2022 |
| Mysids energy | 1995‒2020 (2) | 1975‒2020 (0) | from 5 different sources - year-round - see Bashevkin et al. 2022 |
| Nitrate and Nitrite | 1995‒2020 (0) | 1980‒2020 (0) | from the Discrete Environmental Monitoring Program (EMP) at DWR - year-round |
| Phytoplankton | 1995‒2020 (0) | 1980‒2020 (0) | from the Discrete Environmental Monitoring Program (EMP) at DWR - year-round |
| Potamocorbula | 1997‒2020 (18) | 1975‒2020 (1) | from the Environmental Monitoring Program (EMP) Benthic Survey at DWR - year-round |
| Predatory copepods | 1995‒2020 (2) | 1975‒2020 (0) | from 5 different sources - year-round - see Bashevkin et al. 2022 |
| Predatory copepods catch | 1995‒2020 (2) | 1975‒2020 (0) | from 5 different sources - year-round - see Bashevkin et al. 2022 |
| Predatory copepods energy | 1995‒2020 (2) | 1975‒2020 (0) | from 5 different sources - year-round - see Bashevkin et al. 2022 |
| Predatory zooplankton biomass | 1995‒2020 (2) | 1975‒2020 (0) | summed predatory zooplankton biomass |
| Predatory zooplankton energy | 1995‒2020 (2) | 1975‒2020 (0) | summed predatory zooplankton energy |
| Rotifers catch | 1995‒2020 (2) | 1975‒2020 (0) | from 5 different sources - year-round - see Bashevkin et al. 2022 |
| Rotifers energy | 1995‒2020 (2) | 1975‒2020 (0) | from 5 different sources - year-round - see Bashevkin et al. 2022 |
| Rotifers mass | 1995‒2020 (2) | 1975‒2020 (0) | from 5 different sources - year-round - see Bashevkin et al. 2022 |
| Secchi | 1995‒2020 (0) | 1980‒2020 (0) | from the Discrete Environmental Monitoring Program (EMP) at DWR - year-round |
| Striped bass age 1+ BSMT | 1995‒2020 (38) |  | year-round - midwater trawl - biomass of age 1+ individuals |
| Striped bass age 1+ BSOT | 1995‒2020 (18) |  | year-round - otter trawl - biomass of age 1+ individuals |
| Striped bass BSMT | 1995‒2020 (38) | 1980‒2020 (1) | year-round - midwater trawl - biomass of age 0 individuals |
| Striped bass BSOT | 1995‒2020 (18) | 1980‒2020 (0) | year-round - otter trawl - biomass of age 0 individuals |
| Striped bass FMWT |  | 1975‒2020 (1) | fall (September - December) - midwater trawl - biomass of age 0 individuals |
| Striped bass STN |  | 1975‒2021 (0) | summer (June - August) - townet - biomass of age 0 individuals |
| Temperature | 1995‒2020 (0) | 1980‒2020 (0) | from the Discrete Environmental Monitoring Program (EMP) at DWR - year-round |
| Total zooplankton biomass | 1995‒2020 (2) | 1975‒2020 (0) | summed zooplankton biomass |
| Total zooplankton energy | 1995‒2020 (2) | 1975‒2020 (0) | summed zooplankton energy |
| Turbidity | 1995‒2020 (0) | 1980‒2020 (0) | negative secchi depth |

Table S2. Stations used to calculate input data for annual and monthly models.

| Survey | Temporal resolution | Stations |
| --- | --- | --- |
| Bay Study | Annual | 427, 428, 429, 431, 432, 433, 534, 535, 736, 837 |
| DJFMP | Annual | MS001N, SJ001S, SJ005N, SR012E, SR012E, SR014W, TM001N |
| EMP Benthic | Annual | D4-L, D7-C, D28A-L |
| EMP Nutrients | Annual | D26, D28A, D4, D6, D7, D8 |
| EMP Zoop | Annual | NZD28, NZ054, NZ074, NZ048, NZ086, NZ064, NZ060, NZ028, NZS42, NZ032 |
| FMWT | Annual | 338, 339, 401, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 501, 502, 503, 504, 505, 507, 508, 509, 510, 511, 512, 513, 515, 516, 517, 518, 519, 601, 602, 603, 604, 605, 606, 608, 701, 703, 704, 705, 706, 707, 708, 709, 710, 711, 802, 804, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 902, 904, 905, 906, 908, 915 |
| STN | Annual | 405, 411, 418, 501, 504, 508, 513, 519, 520, 602, 606, 609, 610, 704, 706, 707, 711, 801, 804, 809, 812, 815, 902, 906, 915 |
| Bay Study | Monthly | 317, 318, 319, 320, 321, 322, 323, 325, 427, 428, 429, 430, 431, 432, 433, 534, 535, 736, 837, 345, 346, 447, 750, 751, 752, 853, 760, 761, 863, 864, 865 |
| DJFMP | Monthly | SR014W, SR012E, MS001N, TM001N, SJ005N, SJ001S, OR003W, OR014W, SR012E |
| EMP Benthic | Monthly | D4-L, D6-R, D7-C, D16-L, D28A-L, D24-L, D41-C, D41A-C |
| EMP Nutrients | Monthly | D26, D28A, D4, D41, D6, D7, D8 |
| EMP Zoop | Monthly | NZD28, NZ054, NZ074, NZ048, NZD16, NZ086, NZ064, NZ060, NZ028, NZS42, NZ032, NZD41, NZD06 |

Table S3. Path coefficients for annual and annual-regional SEMS. The 'op' column defines the operation between the predictor and response where ~ refers to regression, ~~ refers to covariances, and ~= refers to latent variable manifestations. Covariances between exogenous variables do not have standard errors or p-values.

| Model | Region | Response | op | Predictor | Effect | se | pvalue |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Detrended | Sacramento | chla | ~ | corbic | 0.4860 | 0.1312 | 0.0002 |
| Detrended | Sacramento | chla | ~ | flow | 0.1432 | 0.1506 | 0.3415 |
| Detrended | Sacramento | chla | ~ | temp | 0.1667 | 0.1276 | 0.1913 |
| Detrended | Sacramento | chla | ~ | turbid | 0.1926 | 0.1341 | 0.1508 |
| Detrended | Sacramento | hzoop | ~ | chla | 0.3931 | 0.1594 | 0.0136 |
| Detrended | Sacramento | hzoop | ~ | corbic | -0.0633 | 0.1880 | 0.7365 |
| Detrended | Sacramento | hzoop | ~ | flow | 0.0270 | 0.1829 | 0.8826 |
| Detrended | Sacramento | hzoop | ~ | temp | 0.1665 | 0.1542 | 0.2803 |
| Detrended | Sacramento | hzoop | ~ | turbid | -0.0721 | 0.1671 | 0.6660 |
| Detrended | Sacramento | pzoop | ~ | chla | 0.7302 | 0.0955 | 0.0000 |
| Detrended | Sacramento | pzoop | ~ | corbic | 0.2671 | 0.1096 | 0.0148 |
| Detrended | Sacramento | pzoop | ~ | flow | -0.4966 | 0.1034 | 0.0000 |
| Detrended | Sacramento | pzoop | ~ | temp | 0.0184 | 0.0933 | 0.8435 |
| Detrended | Sacramento | pzoop | ~ | turbid | 0.0065 | 0.0986 | 0.9472 |
| Detrended | Sacramento | pzoop | ~ | hzoop | 0.0177 | 0.0917 | 0.8471 |
| Detrended | Sacramento | fish | ~ | chla | -0.7132 | 0.3269 | 0.0291 |
| Detrended | Sacramento | fish | ~ | hzoop | 0.1530 | 0.1634 | 0.3492 |
| Detrended | Sacramento | fish | ~ | pzoop | 0.5734 | 0.2814 | 0.0416 |
| Detrended | Sacramento | fish | ~ | corbic | -0.6484 | 0.2421 | 0.0074 |
| Detrended | Sacramento | fish | ~ | flow | 0.5380 | 0.2443 | 0.0277 |
| Detrended | Sacramento | fish | ~ | temp | 0.2221 | 0.1837 | 0.2266 |
| Detrended | Sacramento | fish | ~ | turbid | 0.0846 | 0.1983 | 0.6697 |
| Detrended | Sacramento | fish | =~ | estfish | 0.6155 | 0.1286 | 0.0000 |
| Detrended | Sacramento | fish | =~ | estfish\_stn | 0.7256 | 0.1396 | 0.0000 |
| Detrended | Sacramento | estfish\_stn | ~~ | chla | 0.6757 | 0.1661 | 0.0000 |
| Detrended | Sacramento | estfish | ~~ | estfish | 0.6211 | 0.1583 | 0.0001 |
| Detrended | Sacramento | estfish\_stn | ~~ | estfish\_stn | 0.6237 | 0.2351 | 0.0080 |
| Detrended | Sacramento | chla | ~~ | chla | 0.7078 | 0.1038 | 0.0000 |
| Detrended | Sacramento | hzoop | ~~ | hzoop | 0.8304 | 0.1058 | 0.0000 |
| Detrended | Sacramento | pzoop | ~~ | pzoop | 0.2863 | 0.0718 | 0.0001 |
| Detrended | Sacramento | fish | ~~ | fish | 0.4444 | 0.1769 | 0.0120 |
| Detrended | Sacramento | corbic | ~~ | corbic | 1.0000 | 0.0000 |  |
| Detrended | Sacramento | corbic | ~~ | flow | 0.3769 | 0.0000 |  |
| Detrended | Sacramento | corbic | ~~ | temp | -0.1741 | 0.0000 |  |
| Detrended | Sacramento | corbic | ~~ | turbid | -0.2650 | 0.0000 |  |
| Detrended | Sacramento | flow | ~~ | flow | 1.0000 | 0.0000 |  |
| Detrended | Sacramento | flow | ~~ | temp | -0.3757 | 0.0000 |  |
| Detrended | Sacramento | flow | ~~ | turbid | 0.2872 | 0.0000 |  |
| Detrended | Sacramento | temp | ~~ | temp | 1.0000 | 0.0000 |  |
| Detrended | Sacramento | temp | ~~ | turbid | -0.0296 | 0.0000 |  |
| Detrended | Sacramento | turbid | ~~ | turbid | 1.0000 | 0.0000 |  |
| Detrended | San Joaquin | chla | ~ | corbic | 0.1201 | 0.1555 | 0.4400 |
| Detrended | San Joaquin | chla | ~ | flow | -0.0340 | 0.1678 | 0.8396 |
| Detrended | San Joaquin | chla | ~ | temp | 0.1756 | 0.1549 | 0.2568 |
| Detrended | San Joaquin | chla | ~ | turbid | -0.0475 | 0.1630 | 0.7707 |
| Detrended | San Joaquin | hzoop | ~ | chla | 0.4583 | 0.1154 | 0.0001 |
| Detrended | San Joaquin | hzoop | ~ | corbic | 0.2814 | 0.1221 | 0.0212 |
| Detrended | San Joaquin | hzoop | ~ | flow | -0.0084 | 0.1359 | 0.9509 |
| Detrended | San Joaquin | hzoop | ~ | temp | 0.0368 | 0.1298 | 0.7768 |
| Detrended | San Joaquin | hzoop | ~ | turbid | -0.1838 | 0.1298 | 0.1568 |
| Detrended | San Joaquin | pzoop | ~ | chla | 0.5160 | 0.1209 | 0.0000 |
| Detrended | San Joaquin | pzoop | ~ | corbic | -0.1184 | 0.1226 | 0.3342 |
| Detrended | San Joaquin | pzoop | ~ | flow | -0.0125 | 0.1239 | 0.9198 |
| Detrended | San Joaquin | pzoop | ~ | temp | 0.1449 | 0.1174 | 0.2173 |
| Detrended | San Joaquin | pzoop | ~ | turbid | -0.0903 | 0.1229 | 0.4627 |
| Detrended | San Joaquin | pzoop | ~ | hzoop | 0.2177 | 0.1413 | 0.1235 |
| Detrended | San Joaquin | fish | ~ | hzoop | 0.2551 | 0.1656 | 0.1234 |
| Detrended | San Joaquin | fish | ~ | pzoop | -0.3011 | 0.1561 | 0.0537 |
| Detrended | San Joaquin | fish | ~ | corbic | 0.1126 | 0.1485 | 0.4482 |
| Detrended | San Joaquin | fish | ~ | flow | 0.0051 | 0.1486 | 0.9727 |
| Detrended | San Joaquin | fish | ~ | temp | 0.1178 | 0.1435 | 0.4117 |
| Detrended | San Joaquin | fish | ~ | turbid | 0.3880 | 0.1349 | 0.0040 |
| Detrended | San Joaquin | fish | =~ | estfish | 1.0000 | 0.0000 |  |
| Detrended | San Joaquin | estfish | ~~ | estfish | 0.0000 | 0.0000 |  |
| Detrended | San Joaquin | chla | ~~ | chla | 0.9500 | 0.0655 | 0.0000 |
| Detrended | San Joaquin | hzoop | ~~ | hzoop | 0.6213 | 0.1169 | 0.0000 |
| Detrended | San Joaquin | pzoop | ~~ | pzoop | 0.5169 | 0.1117 | 0.0000 |
| Detrended | San Joaquin | fish | ~~ | fish | 0.7428 | 0.1137 | 0.0000 |
| Detrended | San Joaquin | corbic | ~~ | corbic | 1.0000 | 0.0000 |  |
| Detrended | San Joaquin | corbic | ~~ | flow | 0.1815 | 0.0000 |  |
| Detrended | San Joaquin | corbic | ~~ | temp | 0.0040 | 0.0000 |  |
| Detrended | San Joaquin | corbic | ~~ | turbid | -0.0951 | 0.0000 |  |
| Detrended | San Joaquin | flow | ~~ | flow | 1.0000 | 0.0000 |  |
| Detrended | San Joaquin | flow | ~~ | temp | -0.2024 | 0.0000 |  |
| Detrended | San Joaquin | flow | ~~ | turbid | 0.2808 | 0.0000 |  |
| Detrended | San Joaquin | temp | ~~ | temp | 1.0000 | 0.0000 |  |
| Detrended | San Joaquin | temp | ~~ | turbid | 0.1064 | 0.0000 |  |
| Detrended | San Joaquin | turbid | ~~ | turbid | 1.0000 | 0.0000 |  |
| Detrended | Suisun | chla | ~ | potam | 0.1777 | 0.1564 | 0.2561 |
| Detrended | Suisun | chla | ~ | flow | 0.6290 | 0.1690 | 0.0002 |
| Detrended | Suisun | chla | ~ | temp | -0.3245 | 0.1323 | 0.0142 |
| Detrended | Suisun | chla | ~ | turbid | -0.4176 | 0.1692 | 0.0136 |
| Detrended | Suisun | hzoop | ~ | chla | 0.4931 | 0.1207 | 0.0000 |
| Detrended | Suisun | hzoop | ~ | potam | -0.0356 | 0.1322 | 0.7875 |
| Detrended | Suisun | hzoop | ~ | flow | 0.4195 | 0.1731 | 0.0153 |
| Detrended | Suisun | hzoop | ~ | temp | -0.0056 | 0.1234 | 0.9637 |
| Detrended | Suisun | hzoop | ~ | turbid | -0.5108 | 0.1472 | 0.0005 |
| Detrended | Suisun | pzoop | ~ | chla | 0.4911 | 0.1127 | 0.0000 |
| Detrended | Suisun | pzoop | ~ | potam | 0.0346 | 0.1008 | 0.7318 |
| Detrended | Suisun | pzoop | ~ | flow | -0.3008 | 0.1451 | 0.0381 |
| Detrended | Suisun | pzoop | ~ | temp | -0.0478 | 0.0939 | 0.6107 |
| Detrended | Suisun | pzoop | ~ | turbid | 0.0292 | 0.1351 | 0.8287 |
| Detrended | Suisun | pzoop | ~ | hzoop | 0.5076 | 0.1172 | 0.0000 |
| Detrended | Suisun | fish | ~ | hzoop | 0.0856 | 0.1648 | 0.6037 |
| Detrended | Suisun | fish | ~ | pzoop | 0.2782 | 0.1505 | 0.0645 |
| Detrended | Suisun | fish | ~ | potam | -0.1305 | 0.1140 | 0.2525 |
| Detrended | Suisun | fish | ~ | flow | 0.7923 | 0.1555 | 0.0000 |
| Detrended | Suisun | fish | ~ | temp | -0.0635 | 0.1053 | 0.5465 |
| Detrended | Suisun | fish | ~ | turbid | -0.0124 | 0.1540 | 0.9356 |
| Detrended | Suisun | fish | =~ | estfish | 0.6981 | 0.0819 | 0.0000 |
| Detrended | Suisun | fish | =~ | estfish\_stn | 0.7858 | 0.0657 | 0.0000 |
| Detrended | Suisun | fish | =~ | estfish\_bsmt | 0.6496 | 0.0913 | 0.0000 |
| Detrended | Suisun | estfish | ~~ | estfish | 0.5127 | 0.1144 | 0.0000 |
| Detrended | Suisun | estfish\_stn | ~~ | estfish\_stn | 0.3825 | 0.1033 | 0.0002 |
| Detrended | Suisun | estfish\_bsmt | ~~ | estfish\_bsmt | 0.5780 | 0.1186 | 0.0000 |
| Detrended | Suisun | chla | ~~ | chla | 0.7026 | 0.1118 | 0.0000 |
| Detrended | Suisun | hzoop | ~~ | hzoop | 0.4726 | 0.1018 | 0.0000 |
| Detrended | Suisun | pzoop | ~~ | pzoop | 0.2740 | 0.0726 | 0.0002 |
| Detrended | Suisun | fish | ~~ | fish | 0.0526 | 0.0912 | 0.5636 |
| Detrended | Suisun | potam | ~~ | potam | 1.0000 | 0.0000 |  |
| Detrended | Suisun | potam | ~~ | flow | -0.5268 | 0.0000 |  |
| Detrended | Suisun | potam | ~~ | temp | 0.2990 | 0.0000 |  |
| Detrended | Suisun | potam | ~~ | turbid | -0.3924 | 0.0000 |  |
| Detrended | Suisun | flow | ~~ | flow | 1.0000 | 0.0000 |  |
| Detrended | Suisun | flow | ~~ | temp | -0.2786 | 0.0000 |  |
| Detrended | Suisun | flow | ~~ | turbid | 0.6744 | 0.0000 |  |
| Detrended | Suisun | temp | ~~ | temp | 1.0000 | 0.0000 |  |
| Detrended | Suisun | temp | ~~ | turbid | -0.2766 | 0.0000 |  |
| Detrended | Suisun | turbid | ~~ | turbid | 1.0000 | 0.0000 |  |
| Detrended | Whole Estuary | chla | ~ | potam | 0.2584 | 0.1789 | 0.1485 |
| Detrended | Whole Estuary | chla | ~ | flow | 0.3423 | 0.1745 | 0.0499 |
| Detrended | Whole Estuary | chla | ~ | temp | -0.0611 | 0.1646 | 0.7105 |
| Detrended | Whole Estuary | hzoop | ~ | chla | 0.6313 | 0.1034 | 0.0000 |
| Detrended | Whole Estuary | hzoop | ~ | potam | -0.0700 | 0.1544 | 0.6501 |
| Detrended | Whole Estuary | hzoop | ~ | flow | 0.0074 | 0.1576 | 0.9625 |
| Detrended | Whole Estuary | hzoop | ~ | temp | 0.0639 | 0.1347 | 0.6351 |
| Detrended | Whole Estuary | pzoop | ~ | chla | 0.6553 | 0.0929 | 0.0000 |
| Detrended | Whole Estuary | pzoop | ~ | potam | 0.0539 | 0.0953 | 0.5717 |
| Detrended | Whole Estuary | pzoop | ~ | flow | -0.1941 | 0.0971 | 0.0456 |
| Detrended | Whole Estuary | pzoop | ~ | hzoop | 0.3169 | 0.0979 | 0.0012 |
| Detrended | Whole Estuary | pzoop | ~ | temp | -0.0891 | 0.0833 | 0.2846 |
| Detrended | Whole Estuary | fish | ~ | hzoop | 0.1170 | 0.1563 | 0.4542 |
| Detrended | Whole Estuary | fish | ~ | pzoop | 0.3977 | 0.1592 | 0.0125 |
| Detrended | Whole Estuary | fish | ~ | flow | 0.6744 | 0.1472 | 0.0000 |
| Detrended | Whole Estuary | fish | ~ | turbid | 0.1344 | 0.1276 | 0.2921 |
| Detrended | Whole Estuary | fish | ~ | temp | 0.2302 | 0.1215 | 0.0582 |
| Detrended | Whole Estuary | fish | ~ | potam | -0.2263 | 0.1356 | 0.0953 |
| Detrended | Whole Estuary | fish | =~ | estfish | 0.6112 | 0.1040 | 0.0000 |
| Detrended | Whole Estuary | fish | =~ | estfish\_stn | 0.6241 | 0.1017 | 0.0000 |
| Detrended | Whole Estuary | fish | =~ | estfish\_bsmt | 0.7500 | 0.0805 | 0.0000 |
| Detrended | Whole Estuary | estfish | ~~ | estfish | 0.6265 | 0.1271 | 0.0000 |
| Detrended | Whole Estuary | estfish\_stn | ~~ | estfish\_stn | 0.6105 | 0.1270 | 0.0000 |
| Detrended | Whole Estuary | estfish\_bsmt | ~~ | estfish\_bsmt | 0.4374 | 0.1208 | 0.0003 |
| Detrended | Whole Estuary | chla | ~~ | chla | 0.9067 | 0.0855 | 0.0000 |
| Detrended | Whole Estuary | hzoop | ~~ | hzoop | 0.6049 | 0.1201 | 0.0000 |
| Detrended | Whole Estuary | pzoop | ~~ | pzoop | 0.2285 | 0.0634 | 0.0003 |
| Detrended | Whole Estuary | fish | ~~ | fish | 0.0705 | 0.1185 | 0.5519 |
| Detrended | Whole Estuary | potam | ~~ | potam | 1.0000 | 0.0000 |  |
| Detrended | Whole Estuary | potam | ~~ | flow | -0.5556 | 0.0000 |  |
| Detrended | Whole Estuary | potam | ~~ | temp | 0.3586 | 0.0000 |  |
| Detrended | Whole Estuary | potam | ~~ | turbid | -0.2760 | 0.0000 |  |
| Detrended | Whole Estuary | flow | ~~ | flow | 1.0000 | 0.0000 |  |
| Detrended | Whole Estuary | flow | ~~ | temp | -0.3633 | 0.0000 |  |
| Detrended | Whole Estuary | flow | ~~ | turbid | 0.5118 | 0.0000 |  |
| Detrended | Whole Estuary | temp | ~~ | temp | 1.0000 | 0.0000 |  |
| Detrended | Whole Estuary | temp | ~~ | turbid | -0.0441 | 0.0000 |  |
| Detrended | Whole Estuary | turbid | ~~ | turbid | 1.0000 | 0.0000 |  |
| Original | Sacramento | chla | ~ | corbic | 0.4497 | 0.1121 | 0.0001 |
| Original | Sacramento | chla | ~ | flow | 0.2008 | 0.1373 | 0.1436 |
| Original | Sacramento | chla | ~ | temp | 0.1777 | 0.1254 | 0.1565 |
| Original | Sacramento | chla | ~ | turbid | 0.1056 | 0.1289 | 0.4126 |
| Original | Sacramento | hzoop | ~ | chla | 0.1676 | 0.1409 | 0.2343 |
| Original | Sacramento | hzoop | ~ | corbic | 0.3840 | 0.1330 | 0.0039 |
| Original | Sacramento | hzoop | ~ | flow | -0.1588 | 0.1415 | 0.2617 |
| Original | Sacramento | hzoop | ~ | temp | 0.0864 | 0.1299 | 0.5060 |
| Original | Sacramento | hzoop | ~ | turbid | 0.4475 | 0.1095 | 0.0000 |
| Original | Sacramento | pzoop | ~ | chla | 0.6016 | 0.0892 | 0.0000 |
| Original | Sacramento | pzoop | ~ | corbic | 0.3612 | 0.0978 | 0.0002 |
| Original | Sacramento | pzoop | ~ | flow | -0.4792 | 0.0902 | 0.0000 |
| Original | Sacramento | pzoop | ~ | temp | -0.0037 | 0.0846 | 0.9652 |
| Original | Sacramento | pzoop | ~ | turbid | 0.1286 | 0.0918 | 0.1612 |
| Original | Sacramento | pzoop | ~ | hzoop | 0.1338 | 0.1011 | 0.1858 |
| Original | Sacramento | fish | ~ | chla | -0.6863 | 0.2162 | 0.0015 |
| Original | Sacramento | fish | ~ | hzoop | 0.5237 | 0.1443 | 0.0003 |
| Original | Sacramento | fish | ~ | pzoop | 0.6097 | 0.2253 | 0.0068 |
| Original | Sacramento | fish | ~ | corbic | -0.3462 | 0.1765 | 0.0499 |
| Original | Sacramento | fish | ~ | flow | 0.3203 | 0.1776 | 0.0714 |
| Original | Sacramento | fish | ~ | temp | 0.0923 | 0.1299 | 0.4774 |
| Original | Sacramento | fish | ~ | turbid | 0.3255 | 0.1390 | 0.0192 |
| Original | Sacramento | fish | =~ | estfish | 0.8084 | 0.0709 | 0.0000 |
| Original | Sacramento | fish | =~ | estfish\_stn | 0.8434 | 0.0804 | 0.0000 |
| Original | Sacramento | estfish\_stn | ~~ | chla | 0.5948 | 0.1606 | 0.0002 |
| Original | Sacramento | estfish | ~~ | estfish | 0.3464 | 0.1146 | 0.0025 |
| Original | Sacramento | estfish\_stn | ~~ | estfish\_stn | 0.4039 | 0.1428 | 0.0047 |
| Original | Sacramento | chla | ~~ | chla | 0.6859 | 0.1021 | 0.0000 |
| Original | Sacramento | hzoop | ~~ | hzoop | 0.5653 | 0.1041 | 0.0000 |
| Original | Sacramento | pzoop | ~~ | pzoop | 0.2351 | 0.0580 | 0.0001 |
| Original | Sacramento | fish | ~~ | fish | 0.2744 | 0.1076 | 0.0107 |
| Original | Sacramento | corbic | ~~ | corbic | 1.0000 | 0.0000 |  |
| Original | Sacramento | corbic | ~~ | flow | 0.3782 | 0.0000 |  |
| Original | Sacramento | corbic | ~~ | temp | -0.2155 | 0.0000 |  |
| Original | Sacramento | corbic | ~~ | turbid | 0.1434 | 0.0000 |  |
| Original | Sacramento | flow | ~~ | flow | 1.0000 | 0.0000 |  |
| Original | Sacramento | flow | ~~ | temp | -0.3905 | 0.0000 |  |
| Original | Sacramento | flow | ~~ | turbid | 0.3100 | 0.0000 |  |
| Original | Sacramento | temp | ~~ | temp | 1.0000 | 0.0000 |  |
| Original | Sacramento | temp | ~~ | turbid | -0.1037 | 0.0000 |  |
| Original | Sacramento | turbid | ~~ | turbid | 1.0000 | 0.0000 |  |
| Original | San Joaquin | chla | ~ | corbic | 0.2832 | 0.1417 | 0.0458 |
| Original | San Joaquin | chla | ~ | flow | -0.1280 | 0.1399 | 0.3600 |
| Original | San Joaquin | chla | ~ | temp | 0.0810 | 0.1396 | 0.5615 |
| Original | San Joaquin | chla | ~ | turbid | 0.3726 | 0.1385 | 0.0071 |
| Original | San Joaquin | hzoop | ~ | chla | 0.5227 | 0.1140 | 0.0000 |
| Original | San Joaquin | hzoop | ~ | corbic | 0.3779 | 0.1149 | 0.0010 |
| Original | San Joaquin | hzoop | ~ | flow | -0.0630 | 0.1118 | 0.5735 |
| Original | San Joaquin | hzoop | ~ | temp | -0.0253 | 0.1104 | 0.8186 |
| Original | San Joaquin | hzoop | ~ | turbid | -0.0231 | 0.1267 | 0.8552 |
| Original | San Joaquin | pzoop | ~ | chla | 0.5156 | 0.1250 | 0.0000 |
| Original | San Joaquin | pzoop | ~ | corbic | -0.0389 | 0.1204 | 0.7468 |
| Original | San Joaquin | pzoop | ~ | flow | -0.0710 | 0.0997 | 0.4762 |
| Original | San Joaquin | pzoop | ~ | temp | 0.0493 | 0.0981 | 0.6150 |
| Original | San Joaquin | pzoop | ~ | turbid | 0.1778 | 0.1117 | 0.1116 |
| Original | San Joaquin | pzoop | ~ | hzoop | 0.2793 | 0.1393 | 0.0449 |
| Original | San Joaquin | fish | ~ | hzoop | 0.2551 | 0.1238 | 0.0393 |
| Original | San Joaquin | fish | ~ | pzoop | -0.1211 | 0.1182 | 0.3055 |
| Original | San Joaquin | fish | ~ | corbic | 0.1746 | 0.1047 | 0.0955 |
| Original | San Joaquin | fish | ~ | flow | -0.0796 | 0.0878 | 0.3646 |
| Original | San Joaquin | fish | ~ | temp | 0.0171 | 0.0861 | 0.8427 |
| Original | San Joaquin | fish | ~ | turbid | 0.7935 | 0.0812 | 0.0000 |
| Original | San Joaquin | fish | =~ | estfish | 0.9210 | 0.0386 | 0.0000 |
| Original | San Joaquin | fish | =~ | estfish\_stn | 0.7637 | 0.0662 | 0.0000 |
| Original | San Joaquin | fish | =~ | estfish\_bsmt | 0.5825 | 0.1044 | 0.0000 |
| Original | San Joaquin | estfish | ~~ | estfish | 0.1518 | 0.0710 | 0.0326 |
| Original | San Joaquin | estfish\_stn | ~~ | estfish\_stn | 0.4167 | 0.1012 | 0.0000 |
| Original | San Joaquin | estfish\_bsmt | ~~ | estfish\_bsmt | 0.6606 | 0.1217 | 0.0000 |
| Original | San Joaquin | chla | ~~ | chla | 0.7242 | 0.1117 | 0.0000 |
| Original | San Joaquin | hzoop | ~~ | hzoop | 0.4461 | 0.0988 | 0.0000 |
| Original | San Joaquin | pzoop | ~~ | pzoop | 0.3518 | 0.0865 | 0.0000 |
| Original | San Joaquin | fish | ~~ | fish | 0.1362 | 0.0689 | 0.0481 |
| Original | San Joaquin | corbic | ~~ | corbic | 1.0000 | 0.0000 |  |
| Original | San Joaquin | corbic | ~~ | flow | 0.1955 | 0.0000 |  |
| Original | San Joaquin | corbic | ~~ | temp | -0.1689 | 0.0000 |  |
| Original | San Joaquin | corbic | ~~ | turbid | 0.4043 | 0.0000 |  |
| Original | San Joaquin | flow | ~~ | flow | 1.0000 | 0.0000 |  |
| Original | San Joaquin | flow | ~~ | temp | -0.2199 | 0.0000 |  |
| Original | San Joaquin | flow | ~~ | turbid | 0.2303 | 0.0000 |  |
| Original | San Joaquin | temp | ~~ | temp | 1.0000 | 0.0000 |  |
| Original | San Joaquin | temp | ~~ | turbid | -0.2027 | 0.0000 |  |
| Original | San Joaquin | turbid | ~~ | turbid | 1.0000 | 0.0000 |  |
| Original | Suisun | chla | ~ | potam | -0.2850 | 0.1629 | 0.0802 |
| Original | Suisun | chla | ~ | flow | 0.2798 | 0.1763 | 0.1125 |
| Original | Suisun | chla | ~ | temp | -0.2781 | 0.1422 | 0.0506 |
| Original | Suisun | chla | ~ | turbid | -0.2134 | 0.1890 | 0.2588 |
| Original | Suisun | hzoop | ~ | chla | 0.6252 | 0.1015 | 0.0000 |
| Original | Suisun | hzoop | ~ | potam | -0.3526 | 0.1239 | 0.0044 |
| Original | Suisun | hzoop | ~ | flow | 0.1063 | 0.1365 | 0.4361 |
| Original | Suisun | hzoop | ~ | temp | 0.0478 | 0.1134 | 0.6733 |
| Original | Suisun | hzoop | ~ | turbid | -0.2841 | 0.1402 | 0.0428 |
| Original | Suisun | pzoop | ~ | chla | 0.4300 | 0.0993 | 0.0000 |
| Original | Suisun | pzoop | ~ | potam | -0.0136 | 0.0903 | 0.8802 |
| Original | Suisun | pzoop | ~ | flow | -0.3641 | 0.0920 | 0.0001 |
| Original | Suisun | pzoop | ~ | temp | -0.0177 | 0.0736 | 0.8100 |
| Original | Suisun | pzoop | ~ | turbid | 0.1482 | 0.0972 | 0.1273 |
| Original | Suisun | pzoop | ~ | hzoop | 0.6064 | 0.1002 | 0.0000 |
| Original | Suisun | fish | ~ | hzoop | 0.2472 | 0.1572 | 0.1157 |
| Original | Suisun | fish | ~ | pzoop | 0.2675 | 0.1463 | 0.0675 |
| Original | Suisun | fish | ~ | potam | -0.3273 | 0.1002 | 0.0011 |
| Original | Suisun | fish | ~ | flow | 0.2218 | 0.1098 | 0.0434 |
| Original | Suisun | fish | ~ | temp | 0.0062 | 0.0810 | 0.9394 |
| Original | Suisun | fish | ~ | turbid | 0.2621 | 0.1107 | 0.0179 |
| Original | Suisun | fish | =~ | estfish | 0.8750 | 0.0398 | 0.0000 |
| Original | Suisun | fish | =~ | estfish\_stn | 0.8847 | 0.0378 | 0.0000 |
| Original | Suisun | fish | =~ | estfish\_bsmt | 0.7548 | 0.0675 | 0.0000 |
| Original | Suisun | estfish | ~~ | estfish | 0.2344 | 0.0697 | 0.0008 |
| Original | Suisun | estfish\_stn | ~~ | estfish\_stn | 0.2174 | 0.0668 | 0.0011 |
| Original | Suisun | estfish\_bsmt | ~~ | estfish\_bsmt | 0.4302 | 0.1019 | 0.0000 |
| Original | Suisun | chla | ~~ | chla | 0.7190 | 0.1117 | 0.0000 |
| Original | Suisun | hzoop | ~~ | hzoop | 0.3850 | 0.0910 | 0.0000 |
| Original | Suisun | pzoop | ~~ | pzoop | 0.1612 | 0.0460 | 0.0005 |
| Original | Suisun | fish | ~~ | fish | 0.0801 | 0.0484 | 0.0979 |
| Original | Suisun | potam | ~~ | potam | 1.0000 | 0.0000 |  |
| Original | Suisun | potam | ~~ | flow | -0.4816 | 0.0000 |  |
| Original | Suisun | potam | ~~ | temp | 0.4001 | 0.0000 |  |
| Original | Suisun | potam | ~~ | turbid | -0.5489 | 0.0000 |  |
| Original | Suisun | flow | ~~ | flow | 1.0000 | 0.0000 |  |
| Original | Suisun | flow | ~~ | temp | -0.2948 | 0.0000 |  |
| Original | Suisun | flow | ~~ | turbid | 0.6585 | 0.0000 |  |
| Original | Suisun | temp | ~~ | temp | 1.0000 | 0.0000 |  |
| Original | Suisun | temp | ~~ | turbid | -0.3542 | 0.0000 |  |
| Original | Suisun | turbid | ~~ | turbid | 1.0000 | 0.0000 |  |
| Original | Whole Estuary | chla | ~ | potam | -0.3407 | 0.1708 | 0.0461 |
| Original | Whole Estuary | chla | ~ | flow | 0.0546 | 0.1738 | 0.7532 |
| Original | Whole Estuary | chla | ~ | temp | -0.0354 | 0.1659 | 0.8308 |
| Original | Whole Estuary | hzoop | ~ | chla | 0.6665 | 0.0869 | 0.0000 |
| Original | Whole Estuary | hzoop | ~ | potam | -0.3063 | 0.1236 | 0.0132 |
| Original | Whole Estuary | hzoop | ~ | flow | -0.0945 | 0.1164 | 0.4168 |
| Original | Whole Estuary | hzoop | ~ | temp | 0.0526 | 0.1111 | 0.6358 |
| Original | Whole Estuary | pzoop | ~ | chla | 0.6103 | 0.0891 | 0.0000 |
| Original | Whole Estuary | pzoop | ~ | potam | -0.0311 | 0.0832 | 0.7087 |
| Original | Whole Estuary | pzoop | ~ | flow | -0.1998 | 0.0737 | 0.0067 |
| Original | Whole Estuary | pzoop | ~ | hzoop | 0.3791 | 0.0977 | 0.0001 |
| Original | Whole Estuary | pzoop | ~ | temp | -0.0708 | 0.0688 | 0.3035 |
| Original | Whole Estuary | fish | ~ | hzoop | 0.2993 | 0.1312 | 0.0226 |
| Original | Whole Estuary | fish | ~ | pzoop | 0.1534 | 0.1253 | 0.2209 |
| Original | Whole Estuary | fish | ~ | flow | 0.1336 | 0.0849 | 0.1155 |
| Original | Whole Estuary | fish | ~ | turbid | 0.3977 | 0.0883 | 0.0000 |
| Original | Whole Estuary | fish | ~ | temp | 0.0631 | 0.0799 | 0.4301 |
| Original | Whole Estuary | fish | ~ | potam | -0.3214 | 0.1086 | 0.0031 |
| Original | Whole Estuary | fish | =~ | estfish | 0.8945 | 0.0345 | 0.0000 |
| Original | Whole Estuary | fish | =~ | estfish\_stn | 0.8767 | 0.0382 | 0.0000 |
| Original | Whole Estuary | fish | =~ | estfish\_bsmt | 0.7615 | 0.0648 | 0.0000 |
| Original | Whole Estuary | estfish | ~~ | estfish | 0.2000 | 0.0618 | 0.0012 |
| Original | Whole Estuary | estfish\_stn | ~~ | estfish\_stn | 0.2313 | 0.0670 | 0.0006 |
| Original | Whole Estuary | estfish\_bsmt | ~~ | estfish\_bsmt | 0.4201 | 0.0986 | 0.0000 |
| Original | Whole Estuary | chla | ~~ | chla | 0.8478 | 0.1005 | 0.0000 |
| Original | Whole Estuary | hzoop | ~~ | hzoop | 0.3800 | 0.0923 | 0.0000 |
| Original | Whole Estuary | pzoop | ~~ | pzoop | 0.1437 | 0.0417 | 0.0006 |
| Original | Whole Estuary | fish | ~~ | fish | 0.0740 | 0.0453 | 0.1023 |
| Original | Whole Estuary | potam | ~~ | potam | 1.0000 | 0.0000 |  |
| Original | Whole Estuary | potam | ~~ | flow | -0.5255 | 0.0000 |  |
| Original | Whole Estuary | potam | ~~ | temp | 0.4520 | 0.0000 |  |
| Original | Whole Estuary | potam | ~~ | turbid | -0.6302 | 0.0000 |  |
| Original | Whole Estuary | flow | ~~ | flow | 1.0000 | 0.0000 |  |
| Original | Whole Estuary | flow | ~~ | temp | -0.3772 | 0.0000 |  |
| Original | Whole Estuary | flow | ~~ | turbid | 0.4185 | 0.0000 |  |
| Original | Whole Estuary | temp | ~~ | temp | 1.0000 | 0.0000 |  |
| Original | Whole Estuary | temp | ~~ | turbid | -0.2278 | 0.0000 |  |
| Original | Whole Estuary | turbid | ~~ | turbid | 1.0000 | 0.0000 |  |

Table S4. Path coefficients for monthly-regional SEMS. The 'op' column defines the operation between the predictor and response where ~ refers to regression, ~~ refers to covariances, and ~= refers to latent variable manifestations. Covariances between exogenous variables do not have standard errors or p-values.

| Model | Region | Response | op | Predictor | Effect | se | pvalue |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Upper trophic | San Pablo | hzoop | ~ | chla\_1 | -0.0014 | 0.0637 | 0.9825 |
| Upper trophic | San Pablo | hzoop | ~ | hzoop\_1 | 0.3263 | 0.0628 | 0.0000 |
| Upper trophic | San Pablo | hzoop | ~ | pzoop\_1 | 0.0655 | 0.0659 | 0.3206 |
| Upper trophic | San Pablo | hzoop | ~ | potam\_1 | -0.2117 | 0.0633 | 0.0008 |
| Upper trophic | San Pablo | hzoop | ~ | estfish\_bsmt\_1 | -0.1755 | 0.0675 | 0.0094 |
| Upper trophic | San Pablo | hzoop | ~ | flow | -0.0197 | 0.0725 | 0.7853 |
| Upper trophic | San Pablo | hzoop | ~ | temp | -0.0759 | 0.0682 | 0.2655 |
| Upper trophic | San Pablo | hzoop | ~ | turbid | 0.0360 | 0.0719 | 0.6161 |
| Upper trophic | San Pablo | pzoop | ~ | hzoop\_1 | 0.0540 | 0.0664 | 0.4164 |
| Upper trophic | San Pablo | pzoop | ~ | pzoop\_1 | 0.3476 | 0.0607 | 0.0000 |
| Upper trophic | San Pablo | pzoop | ~ | potam\_1 | -0.1095 | 0.0640 | 0.0872 |
| Upper trophic | San Pablo | pzoop | ~ | estfish\_bsmt\_1 | -0.0293 | 0.0684 | 0.6681 |
| Upper trophic | San Pablo | pzoop | ~ | flow | 0.0756 | 0.0717 | 0.2921 |
| Upper trophic | San Pablo | pzoop | ~ | temp | -0.0185 | 0.0682 | 0.7859 |
| Upper trophic | San Pablo | pzoop | ~ | turbid | 0.2150 | 0.0698 | 0.0021 |
| Upper trophic | San Pablo | estfish\_bsmt | ~ | hzoop\_1 | -0.1918 | 0.0595 | 0.0013 |
| Upper trophic | San Pablo | estfish\_bsmt | ~ | pzoop\_1 | 0.1280 | 0.0611 | 0.0360 |
| Upper trophic | San Pablo | estfish\_bsmt | ~ | estfish\_bsmt\_1 | 0.3550 | 0.0617 | 0.0000 |
| Upper trophic | San Pablo | estfish\_bsmt | ~ | flow | 0.0920 | 0.0679 | 0.1755 |
| Upper trophic | San Pablo | estfish\_bsmt | ~ | temp | -0.0319 | 0.0641 | 0.6190 |
| Upper trophic | San Pablo | estfish\_bsmt | ~ | turbid | 0.2297 | 0.0660 | 0.0005 |
| Upper trophic | San Pablo | estfish\_bsmt | ~ | marfish\_bsmt\_1 | 0.0012 | 0.0611 | 0.9850 |
| Upper trophic | San Pablo | estfish\_bsmt | ~ | sbass1\_bsmt\_1 | -0.0185 | 0.0651 | 0.7760 |
| Upper trophic | San Pablo | hzoop | ~~ | hzoop | 0.7540 | 0.0507 | 0.0000 |
| Upper trophic | San Pablo | pzoop | ~~ | pzoop | 0.7498 | 0.0508 | 0.0000 |
| Upper trophic | San Pablo | estfish\_bsmt | ~~ | estfish\_bsmt | 0.6412 | 0.0504 | 0.0000 |
| Upper trophic | San Pablo | hzoop | ~~ | pzoop | -0.0424 | 0.0722 | 0.5568 |
| Upper trophic | San Pablo | hzoop | ~~ | estfish\_bsmt | -0.0656 | 0.0720 | 0.3622 |
| Upper trophic | San Pablo | pzoop | ~~ | estfish\_bsmt | -0.1228 | 0.0713 | 0.0849 |
| Upper trophic | San Pablo | chla\_1 | ~~ | chla\_1 | 1.0000 | 0.0000 |  |
| Upper trophic | San Pablo | chla\_1 | ~~ | hzoop\_1 | 0.1250 | 0.0000 |  |
| Upper trophic | San Pablo | chla\_1 | ~~ | pzoop\_1 | -0.0095 | 0.0000 |  |
| Upper trophic | San Pablo | chla\_1 | ~~ | potam\_1 | 0.0308 | 0.0000 |  |
| Upper trophic | San Pablo | chla\_1 | ~~ | estfish\_bsmt\_1 | -0.0672 | 0.0000 |  |
| Upper trophic | San Pablo | chla\_1 | ~~ | flow | 0.0526 | 0.0000 |  |
| Upper trophic | San Pablo | chla\_1 | ~~ | temp | 0.0224 | 0.0000 |  |
| Upper trophic | San Pablo | chla\_1 | ~~ | turbid | -0.0446 | 0.0000 |  |
| Upper trophic | San Pablo | chla\_1 | ~~ | marfish\_bsmt\_1 | -0.0197 | 0.0000 |  |
| Upper trophic | San Pablo | chla\_1 | ~~ | sbass1\_bsmt\_1 | -0.2022 | 0.0000 |  |
| Upper trophic | San Pablo | hzoop\_1 | ~~ | hzoop\_1 | 1.0000 | 0.0000 |  |
| Upper trophic | San Pablo | hzoop\_1 | ~~ | pzoop\_1 | 0.0782 | 0.0000 |  |
| Upper trophic | San Pablo | hzoop\_1 | ~~ | potam\_1 | -0.2007 | 0.0000 |  |
| Upper trophic | San Pablo | hzoop\_1 | ~~ | estfish\_bsmt\_1 | -0.2110 | 0.0000 |  |
| Upper trophic | San Pablo | hzoop\_1 | ~~ | flow | -0.0200 | 0.0000 |  |
| Upper trophic | San Pablo | hzoop\_1 | ~~ | temp | 0.2136 | 0.0000 |  |
| Upper trophic | San Pablo | hzoop\_1 | ~~ | turbid | 0.0010 | 0.0000 |  |
| Upper trophic | San Pablo | hzoop\_1 | ~~ | marfish\_bsmt\_1 | -0.0599 | 0.0000 |  |
| Upper trophic | San Pablo | hzoop\_1 | ~~ | sbass1\_bsmt\_1 | -0.1239 | 0.0000 |  |
| Upper trophic | San Pablo | pzoop\_1 | ~~ | pzoop\_1 | 1.0000 | 0.0000 |  |
| Upper trophic | San Pablo | pzoop\_1 | ~~ | potam\_1 | -0.0352 | 0.0000 |  |
| Upper trophic | San Pablo | pzoop\_1 | ~~ | estfish\_bsmt\_1 | 0.0251 | 0.0000 |  |
| Upper trophic | San Pablo | pzoop\_1 | ~~ | flow | 0.2441 | 0.0000 |  |
| Upper trophic | San Pablo | pzoop\_1 | ~~ | temp | -0.1639 | 0.0000 |  |
| Upper trophic | San Pablo | pzoop\_1 | ~~ | turbid | 0.1955 | 0.0000 |  |
| Upper trophic | San Pablo | pzoop\_1 | ~~ | marfish\_bsmt\_1 | -0.2075 | 0.0000 |  |
| Upper trophic | San Pablo | pzoop\_1 | ~~ | sbass1\_bsmt\_1 | 0.1433 | 0.0000 |  |
| Upper trophic | San Pablo | potam\_1 | ~~ | potam\_1 | 1.0000 | 0.0000 |  |
| Upper trophic | San Pablo | potam\_1 | ~~ | estfish\_bsmt\_1 | 0.2060 | 0.0000 |  |
| Upper trophic | San Pablo | potam\_1 | ~~ | flow | 0.0436 | 0.0000 |  |
| Upper trophic | San Pablo | potam\_1 | ~~ | temp | -0.0726 | 0.0000 |  |
| Upper trophic | San Pablo | potam\_1 | ~~ | turbid | 0.0736 | 0.0000 |  |
| Upper trophic | San Pablo | potam\_1 | ~~ | marfish\_bsmt\_1 | 0.0361 | 0.0000 |  |
| Upper trophic | San Pablo | potam\_1 | ~~ | sbass1\_bsmt\_1 | 0.1590 | 0.0000 |  |
| Upper trophic | San Pablo | estfish\_bsmt\_1 | ~~ | estfish\_bsmt\_1 | 1.0000 | 0.0000 |  |
| Upper trophic | San Pablo | estfish\_bsmt\_1 | ~~ | flow | 0.2520 | 0.0000 |  |
| Upper trophic | San Pablo | estfish\_bsmt\_1 | ~~ | temp | -0.2459 | 0.0000 |  |
| Upper trophic | San Pablo | estfish\_bsmt\_1 | ~~ | turbid | 0.2012 | 0.0000 |  |
| Upper trophic | San Pablo | estfish\_bsmt\_1 | ~~ | marfish\_bsmt\_1 | 0.0840 | 0.0000 |  |
| Upper trophic | San Pablo | estfish\_bsmt\_1 | ~~ | sbass1\_bsmt\_1 | 0.3628 | 0.0000 |  |
| Upper trophic | San Pablo | flow | ~~ | flow | 1.0000 | 0.0000 |  |
| Upper trophic | San Pablo | flow | ~~ | temp | -0.1859 | 0.0000 |  |
| Upper trophic | San Pablo | flow | ~~ | turbid | 0.4303 | 0.0000 |  |
| Upper trophic | San Pablo | flow | ~~ | marfish\_bsmt\_1 | -0.2332 | 0.0000 |  |
| Upper trophic | San Pablo | flow | ~~ | sbass1\_bsmt\_1 | 0.1682 | 0.0000 |  |
| Upper trophic | San Pablo | temp | ~~ | temp | 1.0000 | 0.0000 |  |
| Upper trophic | San Pablo | temp | ~~ | turbid | -0.2611 | 0.0000 |  |
| Upper trophic | San Pablo | temp | ~~ | marfish\_bsmt\_1 | 0.1440 | 0.0000 |  |
| Upper trophic | San Pablo | temp | ~~ | sbass1\_bsmt\_1 | -0.2778 | 0.0000 |  |
| Upper trophic | San Pablo | turbid | ~~ | turbid | 1.0000 | 0.0000 |  |
| Upper trophic | San Pablo | turbid | ~~ | marfish\_bsmt\_1 | -0.0830 | 0.0000 |  |
| Upper trophic | San Pablo | turbid | ~~ | sbass1\_bsmt\_1 | 0.3117 | 0.0000 |  |
| Upper trophic | San Pablo | marfish\_bsmt\_1 | ~~ | marfish\_bsmt\_1 | 1.0000 | 0.0000 |  |
| Upper trophic | San Pablo | marfish\_bsmt\_1 | ~~ | sbass1\_bsmt\_1 | -0.0740 | 0.0000 |  |
| Upper trophic | San Pablo | sbass1\_bsmt\_1 | ~~ | sbass1\_bsmt\_1 | 1.0000 | 0.0000 |  |
| Upper trophic | Suisun | hzoop | ~ | chla\_1 | 0.0730 | 0.0613 | 0.2337 |
| Upper trophic | Suisun | hzoop | ~ | hzoop\_1 | 0.3490 | 0.0657 | 0.0000 |
| Upper trophic | Suisun | hzoop | ~ | pzoop\_1 | 0.0326 | 0.0616 | 0.5964 |
| Upper trophic | Suisun | hzoop | ~ | potam\_1 | -0.2160 | 0.0626 | 0.0006 |
| Upper trophic | Suisun | hzoop | ~ | estfish\_bsmt\_1 | -0.0171 | 0.0597 | 0.7739 |
| Upper trophic | Suisun | hzoop | ~ | flow | 0.1848 | 0.0641 | 0.0039 |
| Upper trophic | Suisun | hzoop | ~ | temp | 0.0247 | 0.0598 | 0.6791 |
| Upper trophic | Suisun | hzoop | ~ | turbid | -0.1874 | 0.0618 | 0.0024 |
| Upper trophic | Suisun | pzoop | ~ | chla\_1 | 0.1858 | 0.0595 | 0.0018 |
| Upper trophic | Suisun | pzoop | ~ | hzoop\_1 | 0.1121 | 0.0689 | 0.1038 |
| Upper trophic | Suisun | pzoop | ~ | pzoop\_1 | 0.4106 | 0.0554 | 0.0000 |
| Upper trophic | Suisun | pzoop | ~ | potam\_1 | -0.0852 | 0.0630 | 0.1763 |
| Upper trophic | Suisun | pzoop | ~ | estfish\_bsmt\_1 | 0.0339 | 0.0595 | 0.5693 |
| Upper trophic | Suisun | pzoop | ~ | flow | -0.1027 | 0.0648 | 0.1128 |
| Upper trophic | Suisun | pzoop | ~ | temp | 0.1897 | 0.0584 | 0.0012 |
| Upper trophic | Suisun | pzoop | ~ | turbid | 0.0352 | 0.0628 | 0.5748 |
| Upper trophic | Suisun | estfish\_bsmt | ~ | hzoop\_1 | 0.1323 | 0.0691 | 0.0556 |
| Upper trophic | Suisun | estfish\_bsmt | ~ | pzoop\_1 | -0.0767 | 0.0666 | 0.2495 |
| Upper trophic | Suisun | estfish\_bsmt | ~ | estfish\_bsmt\_1 | 0.1690 | 0.0684 | 0.0135 |
| Upper trophic | Suisun | estfish\_bsmt | ~ | flow | -0.2100 | 0.0687 | 0.0022 |
| Upper trophic | Suisun | estfish\_bsmt | ~ | temp | 0.0172 | 0.0642 | 0.7883 |
| Upper trophic | Suisun | estfish\_bsmt | ~ | turbid | 0.2322 | 0.0641 | 0.0003 |
| Upper trophic | Suisun | estfish\_bsmt | ~ | sbass1\_bsmt\_1 | 0.2240 | 0.0644 | 0.0005 |
| Upper trophic | Suisun | hzoop | ~~ | hzoop | 0.6686 | 0.0485 | 0.0000 |
| Upper trophic | Suisun | pzoop | ~~ | pzoop | 0.6664 | 0.0484 | 0.0000 |
| Upper trophic | Suisun | estfish\_bsmt | ~~ | estfish\_bsmt | 0.7873 | 0.0471 | 0.0000 |
| Upper trophic | Suisun | hzoop | ~~ | pzoop | 0.2610 | 0.0643 | 0.0000 |
| Upper trophic | Suisun | hzoop | ~~ | estfish\_bsmt | -0.1029 | 0.0683 | 0.1318 |
| Upper trophic | Suisun | pzoop | ~~ | estfish\_bsmt | 0.1848 | 0.0667 | 0.0056 |
| Upper trophic | Suisun | chla\_1 | ~~ | chla\_1 | 1.0000 | 0.0000 |  |
| Upper trophic | Suisun | chla\_1 | ~~ | hzoop\_1 | 0.3588 | 0.0000 |  |
| Upper trophic | Suisun | chla\_1 | ~~ | pzoop\_1 | 0.1026 | 0.0000 |  |
| Upper trophic | Suisun | chla\_1 | ~~ | potam\_1 | -0.0225 | 0.0000 |  |
| Upper trophic | Suisun | chla\_1 | ~~ | estfish\_bsmt\_1 | -0.0464 | 0.0000 |  |
| Upper trophic | Suisun | chla\_1 | ~~ | flow | 0.1857 | 0.0000 |  |
| Upper trophic | Suisun | chla\_1 | ~~ | temp | -0.1830 | 0.0000 |  |
| Upper trophic | Suisun | chla\_1 | ~~ | turbid | 0.0068 | 0.0000 |  |
| Upper trophic | Suisun | chla\_1 | ~~ | sbass1\_bsmt\_1 | -0.0850 | 0.0000 |  |
| Upper trophic | Suisun | hzoop\_1 | ~~ | hzoop\_1 | 1.0000 | 0.0000 |  |
| Upper trophic | Suisun | hzoop\_1 | ~~ | pzoop\_1 | 0.2750 | 0.0000 |  |
| Upper trophic | Suisun | hzoop\_1 | ~~ | potam\_1 | -0.3374 | 0.0000 |  |
| Upper trophic | Suisun | hzoop\_1 | ~~ | estfish\_bsmt\_1 | -0.0294 | 0.0000 |  |
| Upper trophic | Suisun | hzoop\_1 | ~~ | flow | 0.3579 | 0.0000 |  |
| Upper trophic | Suisun | hzoop\_1 | ~~ | temp | -0.1467 | 0.0000 |  |
| Upper trophic | Suisun | hzoop\_1 | ~~ | turbid | 0.1242 | 0.0000 |  |
| Upper trophic | Suisun | hzoop\_1 | ~~ | sbass1\_bsmt\_1 | -0.0531 | 0.0000 |  |
| Upper trophic | Suisun | pzoop\_1 | ~~ | pzoop\_1 | 1.0000 | 0.0000 |  |
| Upper trophic | Suisun | pzoop\_1 | ~~ | potam\_1 | -0.1338 | 0.0000 |  |
| Upper trophic | Suisun | pzoop\_1 | ~~ | estfish\_bsmt\_1 | 0.2113 | 0.0000 |  |
| Upper trophic | Suisun | pzoop\_1 | ~~ | flow | -0.0472 | 0.0000 |  |
| Upper trophic | Suisun | pzoop\_1 | ~~ | temp | 0.0876 | 0.0000 |  |
| Upper trophic | Suisun | pzoop\_1 | ~~ | turbid | 0.0589 | 0.0000 |  |
| Upper trophic | Suisun | pzoop\_1 | ~~ | sbass1\_bsmt\_1 | 0.0573 | 0.0000 |  |
| Upper trophic | Suisun | potam\_1 | ~~ | potam\_1 | 1.0000 | 0.0000 |  |
| Upper trophic | Suisun | potam\_1 | ~~ | estfish\_bsmt\_1 | -0.1251 | 0.0000 |  |
| Upper trophic | Suisun | potam\_1 | ~~ | flow | -0.2855 | 0.0000 |  |
| Upper trophic | Suisun | potam\_1 | ~~ | temp | 0.0481 | 0.0000 |  |
| Upper trophic | Suisun | potam\_1 | ~~ | turbid | -0.3259 | 0.0000 |  |
| Upper trophic | Suisun | potam\_1 | ~~ | sbass1\_bsmt\_1 | 0.0260 | 0.0000 |  |
| Upper trophic | Suisun | estfish\_bsmt\_1 | ~~ | estfish\_bsmt\_1 | 1.0000 | 0.0000 |  |
| Upper trophic | Suisun | estfish\_bsmt\_1 | ~~ | flow | -0.1253 | 0.0000 |  |
| Upper trophic | Suisun | estfish\_bsmt\_1 | ~~ | temp | -0.0436 | 0.0000 |  |
| Upper trophic | Suisun | estfish\_bsmt\_1 | ~~ | turbid | 0.1400 | 0.0000 |  |
| Upper trophic | Suisun | estfish\_bsmt\_1 | ~~ | sbass1\_bsmt\_1 | 0.4133 | 0.0000 |  |
| Upper trophic | Suisun | flow | ~~ | flow | 1.0000 | 0.0000 |  |
| Upper trophic | Suisun | flow | ~~ | temp | -0.1649 | 0.0000 |  |
| Upper trophic | Suisun | flow | ~~ | turbid | 0.2877 | 0.0000 |  |
| Upper trophic | Suisun | flow | ~~ | sbass1\_bsmt\_1 | -0.1677 | 0.0000 |  |
| Upper trophic | Suisun | temp | ~~ | temp | 1.0000 | 0.0000 |  |
| Upper trophic | Suisun | temp | ~~ | turbid | -0.2118 | 0.0000 |  |
| Upper trophic | Suisun | temp | ~~ | sbass1\_bsmt\_1 | 0.0619 | 0.0000 |  |
| Upper trophic | Suisun | turbid | ~~ | turbid | 1.0000 | 0.0000 |  |
| Upper trophic | Suisun | turbid | ~~ | sbass1\_bsmt\_1 | 0.0758 | 0.0000 |  |
| Upper trophic | Suisun | sbass1\_bsmt\_1 | ~~ | sbass1\_bsmt\_1 | 1.0000 | 0.0000 |  |
| Upper trophic | Sacramento | hzoop | ~ | chla\_1 | 0.0370 | 0.0665 | 0.5779 |
| Upper trophic | Sacramento | hzoop | ~ | hzoop\_1 | 0.2120 | 0.0672 | 0.0016 |
| Upper trophic | Sacramento | hzoop | ~ | pzoop\_1 | 0.0391 | 0.0719 | 0.5861 |
| Upper trophic | Sacramento | hzoop | ~ | corbic\_1 | 0.0047 | 0.0662 | 0.9437 |
| Upper trophic | Sacramento | hzoop | ~ | estfish\_bsmt\_1 | -0.0843 | 0.0724 | 0.2443 |
| Upper trophic | Sacramento | hzoop | ~ | flow | 0.2414 | 0.0731 | 0.0010 |
| Upper trophic | Sacramento | hzoop | ~ | temp | 0.1107 | 0.0676 | 0.1016 |
| Upper trophic | Sacramento | hzoop | ~ | turbid | 0.1847 | 0.0664 | 0.0054 |
| Upper trophic | Sacramento | pzoop | ~ | chla\_1 | 0.2481 | 0.0568 | 0.0000 |
| Upper trophic | Sacramento | pzoop | ~ | hzoop\_1 | 0.1723 | 0.0602 | 0.0042 |
| Upper trophic | Sacramento | pzoop | ~ | pzoop\_1 | 0.2287 | 0.0620 | 0.0002 |
| Upper trophic | Sacramento | pzoop | ~ | corbic\_1 | 0.0304 | 0.0588 | 0.6057 |
| Upper trophic | Sacramento | pzoop | ~ | estfish\_bsmt\_1 | -0.0638 | 0.0643 | 0.3213 |
| Upper trophic | Sacramento | pzoop | ~ | flow | -0.4357 | 0.0603 | 0.0000 |
| Upper trophic | Sacramento | pzoop | ~ | temp | 0.0815 | 0.0602 | 0.1756 |
| Upper trophic | Sacramento | pzoop | ~ | turbid | 0.0038 | 0.0602 | 0.9497 |
| Upper trophic | Sacramento | estfish\_bsmt | ~ | hzoop\_1 | 0.1386 | 0.0667 | 0.0376 |
| Upper trophic | Sacramento | estfish\_bsmt | ~ | pzoop\_1 | 0.0111 | 0.0683 | 0.8713 |
| Upper trophic | Sacramento | estfish\_bsmt | ~ | estfish\_bsmt\_1 | 0.1292 | 0.0702 | 0.0658 |
| Upper trophic | Sacramento | estfish\_bsmt | ~ | flow | -0.4352 | 0.0654 | 0.0000 |
| Upper trophic | Sacramento | estfish\_bsmt | ~ | temp | -0.0154 | 0.0647 | 0.8119 |
| Upper trophic | Sacramento | estfish\_bsmt | ~ | turbid | 0.0601 | 0.0658 | 0.3614 |
| Upper trophic | Sacramento | estfish\_bsmt | ~ | sside\_1 | -0.0170 | 0.0648 | 0.7927 |
| Upper trophic | Sacramento | estfish\_bsmt | ~ | cent\_1 | -0.1254 | 0.0649 | 0.0534 |
| Upper trophic | Sacramento | estfish\_bsmt | ~ | sbass1\_bsmt\_1 | 0.0905 | 0.0676 | 0.1807 |
| Upper trophic | Sacramento | hzoop | ~~ | hzoop | 0.8160 | 0.0480 | 0.0000 |
| Upper trophic | Sacramento | pzoop | ~~ | pzoop | 0.6415 | 0.0501 | 0.0000 |
| Upper trophic | Sacramento | estfish\_bsmt | ~~ | estfish\_bsmt | 0.7311 | 0.0508 | 0.0000 |
| Upper trophic | Sacramento | hzoop | ~~ | pzoop | 0.2483 | 0.0675 | 0.0002 |
| Upper trophic | Sacramento | hzoop | ~~ | estfish\_bsmt | -0.0723 | 0.0716 | 0.3127 |
| Upper trophic | Sacramento | pzoop | ~~ | estfish\_bsmt | -0.0033 | 0.0720 | 0.9636 |
| Upper trophic | Sacramento | chla\_1 | ~~ | chla\_1 | 1.0000 | 0.0000 |  |
| Upper trophic | Sacramento | chla\_1 | ~~ | hzoop\_1 | 0.1005 | 0.0000 |  |
| Upper trophic | Sacramento | chla\_1 | ~~ | pzoop\_1 | 0.0716 | 0.0000 |  |
| Upper trophic | Sacramento | chla\_1 | ~~ | corbic\_1 | -0.0838 | 0.0000 |  |
| Upper trophic | Sacramento | chla\_1 | ~~ | estfish\_bsmt\_1 | 0.0105 | 0.0000 |  |
| Upper trophic | Sacramento | chla\_1 | ~~ | flow | 0.1033 | 0.0000 |  |
| Upper trophic | Sacramento | chla\_1 | ~~ | temp | -0.0128 | 0.0000 |  |
| Upper trophic | Sacramento | chla\_1 | ~~ | turbid | 0.1526 | 0.0000 |  |
| Upper trophic | Sacramento | chla\_1 | ~~ | sside\_1 | 0.0026 | 0.0000 |  |
| Upper trophic | Sacramento | chla\_1 | ~~ | cent\_1 | 0.0007 | 0.0000 |  |
| Upper trophic | Sacramento | chla\_1 | ~~ | sbass1\_bsmt\_1 | -0.1068 | 0.0000 |  |
| Upper trophic | Sacramento | hzoop\_1 | ~~ | hzoop\_1 | 1.0000 | 0.0000 |  |
| Upper trophic | Sacramento | hzoop\_1 | ~~ | pzoop\_1 | 0.1557 | 0.0000 |  |
| Upper trophic | Sacramento | hzoop\_1 | ~~ | corbic\_1 | -0.0029 | 0.0000 |  |
| Upper trophic | Sacramento | hzoop\_1 | ~~ | estfish\_bsmt\_1 | -0.0533 | 0.0000 |  |
| Upper trophic | Sacramento | hzoop\_1 | ~~ | flow | 0.2366 | 0.0000 |  |
| Upper trophic | Sacramento | hzoop\_1 | ~~ | temp | -0.0604 | 0.0000 |  |
| Upper trophic | Sacramento | hzoop\_1 | ~~ | turbid | -0.0169 | 0.0000 |  |
| Upper trophic | Sacramento | hzoop\_1 | ~~ | sside\_1 | -0.2478 | 0.0000 |  |
| Upper trophic | Sacramento | hzoop\_1 | ~~ | cent\_1 | -0.0408 | 0.0000 |  |
| Upper trophic | Sacramento | hzoop\_1 | ~~ | sbass1\_bsmt\_1 | -0.0608 | 0.0000 |  |
| Upper trophic | Sacramento | pzoop\_1 | ~~ | pzoop\_1 | 1.0000 | 0.0000 |  |
| Upper trophic | Sacramento | pzoop\_1 | ~~ | corbic\_1 | -0.0675 | 0.0000 |  |
| Upper trophic | Sacramento | pzoop\_1 | ~~ | estfish\_bsmt\_1 | 0.2987 | 0.0000 |  |
| Upper trophic | Sacramento | pzoop\_1 | ~~ | flow | -0.2656 | 0.0000 |  |
| Upper trophic | Sacramento | pzoop\_1 | ~~ | temp | 0.1255 | 0.0000 |  |
| Upper trophic | Sacramento | pzoop\_1 | ~~ | turbid | 0.0797 | 0.0000 |  |
| Upper trophic | Sacramento | pzoop\_1 | ~~ | sside\_1 | 0.0823 | 0.0000 |  |
| Upper trophic | Sacramento | pzoop\_1 | ~~ | cent\_1 | 0.0125 | 0.0000 |  |
| Upper trophic | Sacramento | pzoop\_1 | ~~ | sbass1\_bsmt\_1 | 0.1558 | 0.0000 |  |
| Upper trophic | Sacramento | corbic\_1 | ~~ | corbic\_1 | 1.0000 | 0.0000 |  |
| Upper trophic | Sacramento | corbic\_1 | ~~ | estfish\_bsmt\_1 | 0.0587 | 0.0000 |  |
| Upper trophic | Sacramento | corbic\_1 | ~~ | flow | 0.0111 | 0.0000 |  |
| Upper trophic | Sacramento | corbic\_1 | ~~ | temp | -0.1465 | 0.0000 |  |
| Upper trophic | Sacramento | corbic\_1 | ~~ | turbid | -0.0269 | 0.0000 |  |
| Upper trophic | Sacramento | corbic\_1 | ~~ | sside\_1 | -0.0415 | 0.0000 |  |
| Upper trophic | Sacramento | corbic\_1 | ~~ | cent\_1 | -0.1736 | 0.0000 |  |
| Upper trophic | Sacramento | corbic\_1 | ~~ | sbass1\_bsmt\_1 | -0.0916 | 0.0000 |  |
| Upper trophic | Sacramento | estfish\_bsmt\_1 | ~~ | estfish\_bsmt\_1 | 1.0000 | 0.0000 |  |
| Upper trophic | Sacramento | estfish\_bsmt\_1 | ~~ | flow | -0.3233 | 0.0000 |  |
| Upper trophic | Sacramento | estfish\_bsmt\_1 | ~~ | temp | 0.1322 | 0.0000 |  |
| Upper trophic | Sacramento | estfish\_bsmt\_1 | ~~ | turbid | 0.1945 | 0.0000 |  |
| Upper trophic | Sacramento | estfish\_bsmt\_1 | ~~ | sside\_1 | 0.0015 | 0.0000 |  |
| Upper trophic | Sacramento | estfish\_bsmt\_1 | ~~ | cent\_1 | -0.1100 | 0.0000 |  |
| Upper trophic | Sacramento | estfish\_bsmt\_1 | ~~ | sbass1\_bsmt\_1 | 0.3098 | 0.0000 |  |
| Upper trophic | Sacramento | flow | ~~ | flow | 1.0000 | 0.0000 |  |
| Upper trophic | Sacramento | flow | ~~ | temp | -0.2464 | 0.0000 |  |
| Upper trophic | Sacramento | flow | ~~ | turbid | 0.0668 | 0.0000 |  |
| Upper trophic | Sacramento | flow | ~~ | sside\_1 | -0.1297 | 0.0000 |  |
| Upper trophic | Sacramento | flow | ~~ | cent\_1 | -0.1874 | 0.0000 |  |
| Upper trophic | Sacramento | flow | ~~ | sbass1\_bsmt\_1 | -0.1226 | 0.0000 |  |
| Upper trophic | Sacramento | temp | ~~ | temp | 1.0000 | 0.0000 |  |
| Upper trophic | Sacramento | temp | ~~ | turbid | 0.0471 | 0.0000 |  |
| Upper trophic | Sacramento | temp | ~~ | sside\_1 | 0.1189 | 0.0000 |  |
| Upper trophic | Sacramento | temp | ~~ | cent\_1 | 0.1279 | 0.0000 |  |
| Upper trophic | Sacramento | temp | ~~ | sbass1\_bsmt\_1 | 0.1260 | 0.0000 |  |
| Upper trophic | Sacramento | turbid | ~~ | turbid | 1.0000 | 0.0000 |  |
| Upper trophic | Sacramento | turbid | ~~ | sside\_1 | 0.0922 | 0.0000 |  |
| Upper trophic | Sacramento | turbid | ~~ | cent\_1 | -0.1754 | 0.0000 |  |
| Upper trophic | Sacramento | turbid | ~~ | sbass1\_bsmt\_1 | 0.2705 | 0.0000 |  |
| Upper trophic | Sacramento | sside\_1 | ~~ | sside\_1 | 1.0000 | 0.0000 |  |
| Upper trophic | Sacramento | sside\_1 | ~~ | cent\_1 | 0.0630 | 0.0000 |  |
| Upper trophic | Sacramento | sside\_1 | ~~ | sbass1\_bsmt\_1 | -0.0131 | 0.0000 |  |
| Upper trophic | Sacramento | cent\_1 | ~~ | cent\_1 | 1.0000 | 0.0000 |  |
| Upper trophic | Sacramento | cent\_1 | ~~ | sbass1\_bsmt\_1 | -0.2034 | 0.0000 |  |
| Upper trophic | Sacramento | sbass1\_bsmt\_1 | ~~ | sbass1\_bsmt\_1 | 1.0000 | 0.0000 |  |
| Upper trophic | San Joaquin | hzoop | ~ | chla\_1 | 0.2410 | 0.0649 | 0.0002 |
| Upper trophic | San Joaquin | hzoop | ~ | hzoop\_1 | 0.2078 | 0.0643 | 0.0012 |
| Upper trophic | San Joaquin | hzoop | ~ | pzoop\_1 | -0.0274 | 0.0700 | 0.6953 |
| Upper trophic | San Joaquin | hzoop | ~ | corbic\_1 | 0.0683 | 0.0650 | 0.2939 |
| Upper trophic | San Joaquin | hzoop | ~ | estfish\_bsmt\_1 | 0.0033 | 0.0678 | 0.9614 |
| Upper trophic | San Joaquin | hzoop | ~ | flow | 0.1946 | 0.0636 | 0.0022 |
| Upper trophic | San Joaquin | hzoop | ~ | temp | 0.1687 | 0.0642 | 0.0086 |
| Upper trophic | San Joaquin | hzoop | ~ | turbid | -0.0411 | 0.0658 | 0.5323 |
| Upper trophic | San Joaquin | pzoop | ~ | chla\_1 | 0.2902 | 0.0579 | 0.0000 |
| Upper trophic | San Joaquin | pzoop | ~ | hzoop\_1 | 0.1556 | 0.0590 | 0.0083 |
| Upper trophic | San Joaquin | pzoop | ~ | pzoop\_1 | 0.3172 | 0.0598 | 0.0000 |
| Upper trophic | San Joaquin | pzoop | ~ | corbic\_1 | -0.0619 | 0.0580 | 0.2856 |
| Upper trophic | San Joaquin | pzoop | ~ | estfish\_bsmt\_1 | 0.0168 | 0.0613 | 0.7840 |
| Upper trophic | San Joaquin | pzoop | ~ | flow | -0.1310 | 0.0585 | 0.0251 |
| Upper trophic | San Joaquin | pzoop | ~ | temp | -0.0371 | 0.0592 | 0.5306 |
| Upper trophic | San Joaquin | pzoop | ~ | turbid | 0.0993 | 0.0592 | 0.0936 |
| Upper trophic | San Joaquin | estfish\_bsmt | ~ | chla\_1 | 0.1388 | 0.0674 | 0.0396 |
| Upper trophic | San Joaquin | estfish\_bsmt | ~ | hzoop\_1 | 0.1423 | 0.0668 | 0.0331 |
| Upper trophic | San Joaquin | estfish\_bsmt | ~ | pzoop\_1 | -0.0499 | 0.0703 | 0.4780 |
| Upper trophic | San Joaquin | estfish\_bsmt | ~ | estfish\_bsmt\_1 | 0.1936 | 0.0680 | 0.0044 |
| Upper trophic | San Joaquin | estfish\_bsmt | ~ | flow | -0.0907 | 0.0664 | 0.1718 |
| Upper trophic | San Joaquin | estfish\_bsmt | ~ | temp | -0.0278 | 0.0657 | 0.6725 |
| Upper trophic | San Joaquin | estfish\_bsmt | ~ | turbid | 0.2109 | 0.0700 | 0.0026 |
| Upper trophic | San Joaquin | estfish\_bsmt | ~ | sside\_1 | 0.0556 | 0.0645 | 0.3892 |
| Upper trophic | San Joaquin | estfish\_bsmt | ~ | cent\_1 | -0.0757 | 0.0696 | 0.2765 |
| Upper trophic | San Joaquin | estfish\_bsmt | ~ | sbass1\_bsmt\_1 | 0.0682 | 0.0692 | 0.3241 |
| Upper trophic | San Joaquin | hzoop | ~~ | hzoop | 0.8100 | 0.0476 | 0.0000 |
| Upper trophic | San Joaquin | pzoop | ~~ | pzoop | 0.6637 | 0.0498 | 0.0000 |
| Upper trophic | San Joaquin | estfish\_bsmt | ~~ | estfish\_bsmt | 0.8100 | 0.0476 | 0.0000 |
| Upper trophic | San Joaquin | hzoop | ~~ | pzoop | 0.1653 | 0.0690 | 0.0165 |
| Upper trophic | San Joaquin | hzoop | ~~ | estfish\_bsmt | 0.0518 | 0.0707 | 0.4634 |
| Upper trophic | San Joaquin | pzoop | ~~ | estfish\_bsmt | 0.1910 | 0.0683 | 0.0052 |
| Upper trophic | San Joaquin | chla\_1 | ~~ | chla\_1 | 1.0000 | 0.0000 |  |
| Upper trophic | San Joaquin | chla\_1 | ~~ | hzoop\_1 | 0.1547 | 0.0000 |  |
| Upper trophic | San Joaquin | chla\_1 | ~~ | pzoop\_1 | 0.2907 | 0.0000 |  |
| Upper trophic | San Joaquin | chla\_1 | ~~ | corbic\_1 | -0.0521 | 0.0000 |  |
| Upper trophic | San Joaquin | chla\_1 | ~~ | estfish\_bsmt\_1 | 0.0762 | 0.0000 |  |
| Upper trophic | San Joaquin | chla\_1 | ~~ | flow | -0.0635 | 0.0000 |  |
| Upper trophic | San Joaquin | chla\_1 | ~~ | temp | 0.0846 | 0.0000 |  |
| Upper trophic | San Joaquin | chla\_1 | ~~ | turbid | 0.0354 | 0.0000 |  |
| Upper trophic | San Joaquin | chla\_1 | ~~ | sside\_1 | 0.0746 | 0.0000 |  |
| Upper trophic | San Joaquin | chla\_1 | ~~ | cent\_1 | -0.1588 | 0.0000 |  |
| Upper trophic | San Joaquin | chla\_1 | ~~ | sbass1\_bsmt\_1 | -0.0741 | 0.0000 |  |
| Upper trophic | San Joaquin | hzoop\_1 | ~~ | hzoop\_1 | 1.0000 | 0.0000 |  |
| Upper trophic | San Joaquin | hzoop\_1 | ~~ | pzoop\_1 | 0.1908 | 0.0000 |  |
| Upper trophic | San Joaquin | hzoop\_1 | ~~ | corbic\_1 | 0.0909 | 0.0000 |  |
| Upper trophic | San Joaquin | hzoop\_1 | ~~ | estfish\_bsmt\_1 | 0.0051 | 0.0000 |  |
| Upper trophic | San Joaquin | hzoop\_1 | ~~ | flow | 0.0721 | 0.0000 |  |
| Upper trophic | San Joaquin | hzoop\_1 | ~~ | temp | 0.0453 | 0.0000 |  |
| Upper trophic | San Joaquin | hzoop\_1 | ~~ | turbid | -0.0432 | 0.0000 |  |
| Upper trophic | San Joaquin | hzoop\_1 | ~~ | sside\_1 | -0.0206 | 0.0000 |  |
| Upper trophic | San Joaquin | hzoop\_1 | ~~ | cent\_1 | -0.0556 | 0.0000 |  |
| Upper trophic | San Joaquin | hzoop\_1 | ~~ | sbass1\_bsmt\_1 | 0.1572 | 0.0000 |  |
| Upper trophic | San Joaquin | pzoop\_1 | ~~ | pzoop\_1 | 1.0000 | 0.0000 |  |
| Upper trophic | San Joaquin | pzoop\_1 | ~~ | corbic\_1 | 0.0264 | 0.0000 |  |
| Upper trophic | San Joaquin | pzoop\_1 | ~~ | estfish\_bsmt\_1 | 0.2523 | 0.0000 |  |
| Upper trophic | San Joaquin | pzoop\_1 | ~~ | flow | -0.0894 | 0.0000 |  |
| Upper trophic | San Joaquin | pzoop\_1 | ~~ | temp | 0.1279 | 0.0000 |  |
| Upper trophic | San Joaquin | pzoop\_1 | ~~ | turbid | 0.0642 | 0.0000 |  |
| Upper trophic | San Joaquin | pzoop\_1 | ~~ | sside\_1 | 0.1144 | 0.0000 |  |
| Upper trophic | San Joaquin | pzoop\_1 | ~~ | cent\_1 | -0.1641 | 0.0000 |  |
| Upper trophic | San Joaquin | pzoop\_1 | ~~ | sbass1\_bsmt\_1 | 0.0772 | 0.0000 |  |
| Upper trophic | San Joaquin | corbic\_1 | ~~ | corbic\_1 | 1.0000 | 0.0000 |  |
| Upper trophic | San Joaquin | corbic\_1 | ~~ | estfish\_bsmt\_1 | -0.0338 | 0.0000 |  |
| Upper trophic | San Joaquin | corbic\_1 | ~~ | flow | 0.0827 | 0.0000 |  |
| Upper trophic | San Joaquin | corbic\_1 | ~~ | temp | -0.0791 | 0.0000 |  |
| Upper trophic | San Joaquin | corbic\_1 | ~~ | turbid | 0.1426 | 0.0000 |  |
| Upper trophic | San Joaquin | corbic\_1 | ~~ | sside\_1 | -0.2038 | 0.0000 |  |
| Upper trophic | San Joaquin | corbic\_1 | ~~ | cent\_1 | -0.1074 | 0.0000 |  |
| Upper trophic | San Joaquin | corbic\_1 | ~~ | sbass1\_bsmt\_1 | 0.0590 | 0.0000 |  |
| Upper trophic | San Joaquin | estfish\_bsmt\_1 | ~~ | estfish\_bsmt\_1 | 1.0000 | 0.0000 |  |
| Upper trophic | San Joaquin | estfish\_bsmt\_1 | ~~ | flow | -0.1188 | 0.0000 |  |
| Upper trophic | San Joaquin | estfish\_bsmt\_1 | ~~ | temp | 0.1746 | 0.0000 |  |
| Upper trophic | San Joaquin | estfish\_bsmt\_1 | ~~ | turbid | 0.1361 | 0.0000 |  |
| Upper trophic | San Joaquin | estfish\_bsmt\_1 | ~~ | sside\_1 | 0.0405 | 0.0000 |  |
| Upper trophic | San Joaquin | estfish\_bsmt\_1 | ~~ | cent\_1 | -0.1975 | 0.0000 |  |
| Upper trophic | San Joaquin | estfish\_bsmt\_1 | ~~ | sbass1\_bsmt\_1 | 0.2177 | 0.0000 |  |
| Upper trophic | San Joaquin | flow | ~~ | flow | 1.0000 | 0.0000 |  |
| Upper trophic | San Joaquin | flow | ~~ | temp | -0.0496 | 0.0000 |  |
| Upper trophic | San Joaquin | flow | ~~ | turbid | 0.0996 | 0.0000 |  |
| Upper trophic | San Joaquin | flow | ~~ | sside\_1 | -0.0093 | 0.0000 |  |
| Upper trophic | San Joaquin | flow | ~~ | cent\_1 | 0.0875 | 0.0000 |  |
| Upper trophic | San Joaquin | flow | ~~ | sbass1\_bsmt\_1 | -0.1340 | 0.0000 |  |
| Upper trophic | San Joaquin | temp | ~~ | temp | 1.0000 | 0.0000 |  |
| Upper trophic | San Joaquin | temp | ~~ | turbid | -0.0262 | 0.0000 |  |
| Upper trophic | San Joaquin | temp | ~~ | sside\_1 | 0.1052 | 0.0000 |  |
| Upper trophic | San Joaquin | temp | ~~ | cent\_1 | -0.0145 | 0.0000 |  |
| Upper trophic | San Joaquin | temp | ~~ | sbass1\_bsmt\_1 | -0.0369 | 0.0000 |  |
| Upper trophic | San Joaquin | turbid | ~~ | turbid | 1.0000 | 0.0000 |  |
| Upper trophic | San Joaquin | turbid | ~~ | sside\_1 | -0.0400 | 0.0000 |  |
| Upper trophic | San Joaquin | turbid | ~~ | cent\_1 | -0.3208 | 0.0000 |  |
| Upper trophic | San Joaquin | turbid | ~~ | sbass1\_bsmt\_1 | 0.2649 | 0.0000 |  |
| Upper trophic | San Joaquin | sside\_1 | ~~ | sside\_1 | 1.0000 | 0.0000 |  |
| Upper trophic | San Joaquin | sside\_1 | ~~ | cent\_1 | -0.1680 | 0.0000 |  |
| Upper trophic | San Joaquin | sside\_1 | ~~ | sbass1\_bsmt\_1 | -0.0004 | 0.0000 |  |
| Upper trophic | San Joaquin | cent\_1 | ~~ | cent\_1 | 1.0000 | 0.0000 |  |
| Upper trophic | San Joaquin | cent\_1 | ~~ | sbass1\_bsmt\_1 | -0.0534 | 0.0000 |  |
| Upper trophic | San Joaquin | sbass1\_bsmt\_1 | ~~ | sbass1\_bsmt\_1 | 1.0000 | 0.0000 |  |
| Lower trophic | San Pablo | din | ~ | din\_1 | 0.4014 | 0.0495 | 0.0000 |
| Lower trophic | San Pablo | din | ~ | chla | -0.1986 | 0.0537 | 0.0002 |
| Lower trophic | San Pablo | din | ~ | hzoop\_1 | 0.0553 | 0.0562 | 0.3250 |
| Lower trophic | San Pablo | din | ~ | pzoop\_1 | -0.0954 | 0.0561 | 0.0892 |
| Lower trophic | San Pablo | din | ~ | potam\_1 | -0.0176 | 0.0557 | 0.7512 |
| Lower trophic | San Pablo | din | ~ | flow | -0.1759 | 0.0598 | 0.0033 |
| Lower trophic | San Pablo | din | ~ | temp | -0.1217 | 0.0578 | 0.0354 |
| Lower trophic | San Pablo | din | ~ | turbid | 0.1304 | 0.0604 | 0.0307 |
| Lower trophic | San Pablo | chla | ~ | din\_1 | 0.0133 | 0.0666 | 0.8419 |
| Lower trophic | San Pablo | chla | ~ | chla\_1 | 0.2602 | 0.0624 | 0.0000 |
| Lower trophic | San Pablo | chla | ~ | hzoop\_1 | -0.0264 | 0.0653 | 0.6856 |
| Lower trophic | San Pablo | chla | ~ | potam\_1 | -0.0266 | 0.0644 | 0.6794 |
| Lower trophic | San Pablo | chla | ~ | flow | 0.0702 | 0.0689 | 0.3088 |
| Lower trophic | San Pablo | chla | ~ | temp | 0.1526 | 0.0665 | 0.0217 |
| Lower trophic | San Pablo | chla | ~ | turbid | -0.0528 | 0.0701 | 0.4514 |
| Lower trophic | San Pablo | potam | ~ | chla\_1 | 0.0572 | 0.0473 | 0.2267 |
| Lower trophic | San Pablo | potam | ~ | hzoop\_1 | -0.0729 | 0.0494 | 0.1399 |
| Lower trophic | San Pablo | potam | ~ | pzoop\_1 | -0.1599 | 0.0486 | 0.0010 |
| Lower trophic | San Pablo | potam | ~ | potam\_1 | 0.6291 | 0.0351 | 0.0000 |
| Lower trophic | San Pablo | potam | ~ | flow | 0.1029 | 0.0519 | 0.0473 |
| Lower trophic | San Pablo | potam | ~ | temp | -0.0391 | 0.0505 | 0.4388 |
| Lower trophic | San Pablo | potam | ~ | turbid | 0.0335 | 0.0528 | 0.5256 |
| Lower trophic | San Pablo | din | ~~ | din | 0.6798 | 0.0469 | 0.0000 |
| Lower trophic | San Pablo | chla | ~~ | chla | 0.9113 | 0.0347 | 0.0000 |
| Lower trophic | San Pablo | potam | ~~ | potam | 0.5173 | 0.0409 | 0.0000 |
| Lower trophic | San Pablo | din | ~~ | potam | -0.0959 | 0.0648 | 0.1389 |
| Lower trophic | San Pablo | din\_1 | ~~ | din\_1 | 1.0000 | 0.0000 |  |
| Lower trophic | San Pablo | din\_1 | ~~ | hzoop\_1 | 0.0289 | 0.0000 |  |
| Lower trophic | San Pablo | din\_1 | ~~ | pzoop\_1 | -0.0128 | 0.0000 |  |
| Lower trophic | San Pablo | din\_1 | ~~ | potam\_1 | -0.0974 | 0.0000 |  |
| Lower trophic | San Pablo | din\_1 | ~~ | flow | -0.1323 | 0.0000 |  |
| Lower trophic | San Pablo | din\_1 | ~~ | temp | -0.1013 | 0.0000 |  |
| Lower trophic | San Pablo | din\_1 | ~~ | turbid | 0.0761 | 0.0000 |  |
| Lower trophic | San Pablo | din\_1 | ~~ | chla\_1 | -0.2496 | 0.0000 |  |
| Lower trophic | San Pablo | hzoop\_1 | ~~ | hzoop\_1 | 1.0000 | 0.0000 |  |
| Lower trophic | San Pablo | hzoop\_1 | ~~ | pzoop\_1 | 0.0985 | 0.0000 |  |
| Lower trophic | San Pablo | hzoop\_1 | ~~ | potam\_1 | -0.2169 | 0.0000 |  |
| Lower trophic | San Pablo | hzoop\_1 | ~~ | flow | -0.0351 | 0.0000 |  |
| Lower trophic | San Pablo | hzoop\_1 | ~~ | temp | 0.1631 | 0.0000 |  |
| Lower trophic | San Pablo | hzoop\_1 | ~~ | turbid | -0.0017 | 0.0000 |  |
| Lower trophic | San Pablo | hzoop\_1 | ~~ | chla\_1 | 0.0987 | 0.0000 |  |
| Lower trophic | San Pablo | pzoop\_1 | ~~ | pzoop\_1 | 1.0000 | 0.0000 |  |
| Lower trophic | San Pablo | pzoop\_1 | ~~ | potam\_1 | -0.0382 | 0.0000 |  |
| Lower trophic | San Pablo | pzoop\_1 | ~~ | flow | 0.2448 | 0.0000 |  |
| Lower trophic | San Pablo | pzoop\_1 | ~~ | temp | -0.1293 | 0.0000 |  |
| Lower trophic | San Pablo | pzoop\_1 | ~~ | turbid | 0.1805 | 0.0000 |  |
| Lower trophic | San Pablo | pzoop\_1 | ~~ | chla\_1 | -0.0459 | 0.0000 |  |
| Lower trophic | San Pablo | potam\_1 | ~~ | potam\_1 | 1.0000 | 0.0000 |  |
| Lower trophic | San Pablo | potam\_1 | ~~ | flow | 0.0657 | 0.0000 |  |
| Lower trophic | San Pablo | potam\_1 | ~~ | temp | -0.0699 | 0.0000 |  |
| Lower trophic | San Pablo | potam\_1 | ~~ | turbid | 0.0556 | 0.0000 |  |
| Lower trophic | San Pablo | potam\_1 | ~~ | chla\_1 | 0.0048 | 0.0000 |  |
| Lower trophic | San Pablo | flow | ~~ | flow | 1.0000 | 0.0000 |  |
| Lower trophic | San Pablo | flow | ~~ | temp | -0.1939 | 0.0000 |  |
| Lower trophic | San Pablo | flow | ~~ | turbid | 0.3840 | 0.0000 |  |
| Lower trophic | San Pablo | flow | ~~ | chla\_1 | 0.0009 | 0.0000 |  |
| Lower trophic | San Pablo | temp | ~~ | temp | 1.0000 | 0.0000 |  |
| Lower trophic | San Pablo | temp | ~~ | turbid | -0.2925 | 0.0000 |  |
| Lower trophic | San Pablo | temp | ~~ | chla\_1 | -0.0679 | 0.0000 |  |
| Lower trophic | San Pablo | turbid | ~~ | turbid | 1.0000 | 0.0000 |  |
| Lower trophic | San Pablo | turbid | ~~ | chla\_1 | -0.0347 | 0.0000 |  |
| Lower trophic | San Pablo | chla\_1 | ~~ | chla\_1 | 1.0000 | 0.0000 |  |
| Lower trophic | Suisun | din | ~ | din\_1 | 0.4433 | 0.0422 | 0.0000 |
| Lower trophic | Suisun | din | ~ | chla | -0.1291 | 0.0401 | 0.0013 |
| Lower trophic | Suisun | din | ~ | hzoop\_1 | -0.0045 | 0.0460 | 0.9223 |
| Lower trophic | Suisun | din | ~ | pzoop\_1 | 0.0345 | 0.0418 | 0.4094 |
| Lower trophic | Suisun | din | ~ | potam\_1 | 0.0383 | 0.0447 | 0.3910 |
| Lower trophic | Suisun | din | ~ | flow | -0.4247 | 0.0427 | 0.0000 |
| Lower trophic | Suisun | din | ~ | temp | 0.0375 | 0.0402 | 0.3509 |
| Lower trophic | Suisun | din | ~ | turbid | 0.1189 | 0.0428 | 0.0055 |
| Lower trophic | Suisun | chla | ~ | din\_1 | -0.1259 | 0.0712 | 0.0771 |
| Lower trophic | Suisun | chla | ~ | chla\_1 | 0.1496 | 0.0647 | 0.0207 |
| Lower trophic | Suisun | chla | ~ | hzoop\_1 | 0.0701 | 0.0683 | 0.3048 |
| Lower trophic | Suisun | chla | ~ | potam\_1 | 0.0138 | 0.0691 | 0.8416 |
| Lower trophic | Suisun | chla | ~ | flow | 0.0775 | 0.0703 | 0.2704 |
| Lower trophic | Suisun | chla | ~ | temp | -0.0637 | 0.0616 | 0.3014 |
| Lower trophic | Suisun | chla | ~ | turbid | -0.0247 | 0.0664 | 0.7102 |
| Lower trophic | Suisun | potam | ~ | din\_1 | 0.0136 | 0.0451 | 0.7630 |
| Lower trophic | Suisun | potam | ~ | chla\_1 | -0.0267 | 0.0412 | 0.5170 |
| Lower trophic | Suisun | potam | ~ | hzoop\_1 | -0.0061 | 0.0456 | 0.8933 |
| Lower trophic | Suisun | potam | ~ | pzoop\_1 | 0.0724 | 0.0405 | 0.0735 |
| Lower trophic | Suisun | potam | ~ | potam\_1 | 0.7188 | 0.0323 | 0.0000 |
| Lower trophic | Suisun | potam | ~ | flow | -0.1237 | 0.0443 | 0.0052 |
| Lower trophic | Suisun | potam | ~ | temp | -0.0074 | 0.0391 | 0.8492 |
| Lower trophic | Suisun | potam | ~ | turbid | -0.0762 | 0.0416 | 0.0667 |
| Lower trophic | Suisun | din | ~~ | din | 0.3799 | 0.0313 | 0.0000 |
| Lower trophic | Suisun | chla | ~~ | chla | 0.9021 | 0.0343 | 0.0000 |
| Lower trophic | Suisun | potam | ~~ | potam | 0.3551 | 0.0293 | 0.0000 |
| Lower trophic | Suisun | din | ~~ | potam | 0.0275 | 0.0623 | 0.6592 |
| Lower trophic | Suisun | din\_1 | ~~ | din\_1 | 1.0000 | 0.0000 |  |
| Lower trophic | Suisun | din\_1 | ~~ | hzoop\_1 | -0.3554 | 0.0000 |  |
| Lower trophic | Suisun | din\_1 | ~~ | pzoop\_1 | -0.0250 | 0.0000 |  |
| Lower trophic | Suisun | din\_1 | ~~ | potam\_1 | 0.3039 | 0.0000 |  |
| Lower trophic | Suisun | din\_1 | ~~ | flow | -0.4524 | 0.0000 |  |
| Lower trophic | Suisun | din\_1 | ~~ | temp | 0.1385 | 0.0000 |  |
| Lower trophic | Suisun | din\_1 | ~~ | turbid | -0.0792 | 0.0000 |  |
| Lower trophic | Suisun | din\_1 | ~~ | chla\_1 | -0.3110 | 0.0000 |  |
| Lower trophic | Suisun | hzoop\_1 | ~~ | hzoop\_1 | 1.0000 | 0.0000 |  |
| Lower trophic | Suisun | hzoop\_1 | ~~ | pzoop\_1 | 0.3412 | 0.0000 |  |
| Lower trophic | Suisun | hzoop\_1 | ~~ | potam\_1 | -0.3143 | 0.0000 |  |
| Lower trophic | Suisun | hzoop\_1 | ~~ | flow | 0.2977 | 0.0000 |  |
| Lower trophic | Suisun | hzoop\_1 | ~~ | temp | -0.1169 | 0.0000 |  |
| Lower trophic | Suisun | hzoop\_1 | ~~ | turbid | 0.0996 | 0.0000 |  |
| Lower trophic | Suisun | hzoop\_1 | ~~ | chla\_1 | 0.3444 | 0.0000 |  |
| Lower trophic | Suisun | pzoop\_1 | ~~ | pzoop\_1 | 1.0000 | 0.0000 |  |
| Lower trophic | Suisun | pzoop\_1 | ~~ | potam\_1 | -0.1232 | 0.0000 |  |
| Lower trophic | Suisun | pzoop\_1 | ~~ | flow | -0.0380 | 0.0000 |  |
| Lower trophic | Suisun | pzoop\_1 | ~~ | temp | 0.0919 | 0.0000 |  |
| Lower trophic | Suisun | pzoop\_1 | ~~ | turbid | 0.0002 | 0.0000 |  |
| Lower trophic | Suisun | pzoop\_1 | ~~ | chla\_1 | 0.1449 | 0.0000 |  |
| Lower trophic | Suisun | potam\_1 | ~~ | potam\_1 | 1.0000 | 0.0000 |  |
| Lower trophic | Suisun | potam\_1 | ~~ | flow | -0.3155 | 0.0000 |  |
| Lower trophic | Suisun | potam\_1 | ~~ | temp | 0.0303 | 0.0000 |  |
| Lower trophic | Suisun | potam\_1 | ~~ | turbid | -0.3586 | 0.0000 |  |
| Lower trophic | Suisun | potam\_1 | ~~ | chla\_1 | -0.0484 | 0.0000 |  |
| Lower trophic | Suisun | flow | ~~ | flow | 1.0000 | 0.0000 |  |
| Lower trophic | Suisun | flow | ~~ | temp | -0.1557 | 0.0000 |  |
| Lower trophic | Suisun | flow | ~~ | turbid | 0.2880 | 0.0000 |  |
| Lower trophic | Suisun | flow | ~~ | chla\_1 | 0.1492 | 0.0000 |  |
| Lower trophic | Suisun | temp | ~~ | temp | 1.0000 | 0.0000 |  |
| Lower trophic | Suisun | temp | ~~ | turbid | -0.1897 | 0.0000 |  |
| Lower trophic | Suisun | temp | ~~ | chla\_1 | -0.1651 | 0.0000 |  |
| Lower trophic | Suisun | turbid | ~~ | turbid | 1.0000 | 0.0000 |  |
| Lower trophic | Suisun | turbid | ~~ | chla\_1 | -0.0119 | 0.0000 |  |
| Lower trophic | Suisun | chla\_1 | ~~ | chla\_1 | 1.0000 | 0.0000 |  |
| Lower trophic | Sacramento | din | ~ | din\_1 | 0.4119 | 0.0420 | 0.0000 |
| Lower trophic | Sacramento | din | ~ | chla | -0.1708 | 0.0382 | 0.0000 |
| Lower trophic | Sacramento | din | ~ | hzoop\_1 | 0.0712 | 0.0388 | 0.0665 |
| Lower trophic | Sacramento | din | ~ | pzoop\_1 | 0.0601 | 0.0407 | 0.1394 |
| Lower trophic | Sacramento | din | ~ | corbic\_1 | -0.0351 | 0.0378 | 0.3527 |
| Lower trophic | Sacramento | din | ~ | flow | -0.4578 | 0.0398 | 0.0000 |
| Lower trophic | Sacramento | din | ~ | temp | 0.0425 | 0.0384 | 0.2681 |
| Lower trophic | Sacramento | din | ~ | turbid | 0.0946 | 0.0378 | 0.0124 |
| Lower trophic | Sacramento | chla | ~ | din\_1 | -0.1602 | 0.0742 | 0.0309 |
| Lower trophic | Sacramento | chla | ~ | chla\_1 | 0.1865 | 0.0618 | 0.0025 |
| Lower trophic | Sacramento | chla | ~ | hzoop\_1 | -0.0880 | 0.0622 | 0.1574 |
| Lower trophic | Sacramento | chla | ~ | corbic\_1 | -0.0170 | 0.0613 | 0.7812 |
| Lower trophic | Sacramento | chla | ~ | pzoop\_1 | -0.0961 | 0.0665 | 0.1486 |
| Lower trophic | Sacramento | chla | ~ | flow | -0.0676 | 0.0702 | 0.3353 |
| Lower trophic | Sacramento | chla | ~ | temp | 0.1359 | 0.0608 | 0.0254 |
| Lower trophic | Sacramento | chla | ~ | turbid | 0.1277 | 0.0605 | 0.0348 |
| Lower trophic | Sacramento | corbic | ~ | chla\_1 | 0.0443 | 0.0545 | 0.4159 |
| Lower trophic | Sacramento | corbic | ~ | hzoop\_1 | 0.0099 | 0.0565 | 0.8610 |
| Lower trophic | Sacramento | corbic | ~ | pzoop\_1 | -0.0154 | 0.0582 | 0.7913 |
| Lower trophic | Sacramento | corbic | ~ | corbic\_1 | 0.4627 | 0.0470 | 0.0000 |
| Lower trophic | Sacramento | corbic | ~ | flow | 0.0893 | 0.0589 | 0.1296 |
| Lower trophic | Sacramento | corbic | ~ | temp | -0.0331 | 0.0561 | 0.5544 |
| Lower trophic | Sacramento | corbic | ~ | turbid | -0.1241 | 0.0541 | 0.0217 |
| Lower trophic | Sacramento | din | ~~ | din | 0.3407 | 0.0289 | 0.0000 |
| Lower trophic | Sacramento | chla | ~~ | chla | 0.8883 | 0.0361 | 0.0000 |
| Lower trophic | Sacramento | corbic | ~~ | corbic | 0.7378 | 0.0441 | 0.0000 |
| Lower trophic | Sacramento | din | ~~ | corbic | 0.0005 | 0.0626 | 0.9938 |
| Lower trophic | Sacramento | din\_1 | ~~ | din\_1 | 1.0000 | 0.0000 |  |
| Lower trophic | Sacramento | din\_1 | ~~ | hzoop\_1 | -0.1732 | 0.0000 |  |
| Lower trophic | Sacramento | din\_1 | ~~ | pzoop\_1 | 0.3422 | 0.0000 |  |
| Lower trophic | Sacramento | din\_1 | ~~ | corbic\_1 | -0.1725 | 0.0000 |  |
| Lower trophic | Sacramento | din\_1 | ~~ | flow | -0.4620 | 0.0000 |  |
| Lower trophic | Sacramento | din\_1 | ~~ | temp | 0.1502 | 0.0000 |  |
| Lower trophic | Sacramento | din\_1 | ~~ | turbid | 0.1484 | 0.0000 |  |
| Lower trophic | Sacramento | din\_1 | ~~ | chla\_1 | -0.2353 | 0.0000 |  |
| Lower trophic | Sacramento | hzoop\_1 | ~~ | hzoop\_1 | 1.0000 | 0.0000 |  |
| Lower trophic | Sacramento | hzoop\_1 | ~~ | pzoop\_1 | 0.1286 | 0.0000 |  |
| Lower trophic | Sacramento | hzoop\_1 | ~~ | corbic\_1 | -0.0030 | 0.0000 |  |
| Lower trophic | Sacramento | hzoop\_1 | ~~ | flow | 0.2229 | 0.0000 |  |
| Lower trophic | Sacramento | hzoop\_1 | ~~ | temp | -0.0223 | 0.0000 |  |
| Lower trophic | Sacramento | hzoop\_1 | ~~ | turbid | -0.0495 | 0.0000 |  |
| Lower trophic | Sacramento | hzoop\_1 | ~~ | chla\_1 | 0.0490 | 0.0000 |  |
| Lower trophic | Sacramento | pzoop\_1 | ~~ | pzoop\_1 | 1.0000 | 0.0000 |  |
| Lower trophic | Sacramento | pzoop\_1 | ~~ | corbic\_1 | -0.1373 | 0.0000 |  |
| Lower trophic | Sacramento | pzoop\_1 | ~~ | flow | -0.2681 | 0.0000 |  |
| Lower trophic | Sacramento | pzoop\_1 | ~~ | temp | 0.1706 | 0.0000 |  |
| Lower trophic | Sacramento | pzoop\_1 | ~~ | turbid | 0.0537 | 0.0000 |  |
| Lower trophic | Sacramento | pzoop\_1 | ~~ | chla\_1 | 0.1070 | 0.0000 |  |
| Lower trophic | Sacramento | corbic\_1 | ~~ | corbic\_1 | 1.0000 | 0.0000 |  |
| Lower trophic | Sacramento | corbic\_1 | ~~ | flow | 0.0611 | 0.0000 |  |
| Lower trophic | Sacramento | corbic\_1 | ~~ | temp | -0.1698 | 0.0000 |  |
| Lower trophic | Sacramento | corbic\_1 | ~~ | turbid | -0.1016 | 0.0000 |  |
| Lower trophic | Sacramento | corbic\_1 | ~~ | chla\_1 | -0.0802 | 0.0000 |  |
| Lower trophic | Sacramento | flow | ~~ | flow | 1.0000 | 0.0000 |  |
| Lower trophic | Sacramento | flow | ~~ | temp | -0.2116 | 0.0000 |  |
| Lower trophic | Sacramento | flow | ~~ | turbid | 0.0625 | 0.0000 |  |
| Lower trophic | Sacramento | flow | ~~ | chla\_1 | 0.0419 | 0.0000 |  |
| Lower trophic | Sacramento | temp | ~~ | temp | 1.0000 | 0.0000 |  |
| Lower trophic | Sacramento | temp | ~~ | turbid | -0.0032 | 0.0000 |  |
| Lower trophic | Sacramento | temp | ~~ | chla\_1 | -0.0133 | 0.0000 |  |
| Lower trophic | Sacramento | turbid | ~~ | turbid | 1.0000 | 0.0000 |  |
| Lower trophic | Sacramento | turbid | ~~ | chla\_1 | 0.0913 | 0.0000 |  |
| Lower trophic | Sacramento | chla\_1 | ~~ | chla\_1 | 1.0000 | 0.0000 |  |
| Lower trophic | San Joaquin | din | ~ | din\_1 | 0.4074 | 0.0509 | 0.0000 |
| Lower trophic | San Joaquin | din | ~ | chla | -0.1432 | 0.0514 | 0.0054 |
| Lower trophic | San Joaquin | din | ~ | hzoop\_1 | -0.0149 | 0.0525 | 0.7763 |
| Lower trophic | San Joaquin | din | ~ | pzoop\_1 | 0.1161 | 0.0521 | 0.0259 |
| Lower trophic | San Joaquin | din | ~ | corbic\_1 | 0.0471 | 0.0522 | 0.3669 |
| Lower trophic | San Joaquin | din | ~ | flow | -0.0499 | 0.0522 | 0.3385 |
| Lower trophic | San Joaquin | din | ~ | temp | 0.0530 | 0.0514 | 0.3025 |
| Lower trophic | San Joaquin | din | ~ | turbid | 0.2476 | 0.0554 | 0.0000 |
| Lower trophic | San Joaquin | chla | ~ | din\_1 | 0.1032 | 0.0642 | 0.1080 |
| Lower trophic | San Joaquin | chla | ~ | chla\_1 | 0.3312 | 0.0555 | 0.0000 |
| Lower trophic | San Joaquin | chla | ~ | hzoop\_1 | 0.0543 | 0.0598 | 0.3634 |
| Lower trophic | San Joaquin | chla | ~ | corbic\_1 | 0.0973 | 0.0593 | 0.1005 |
| Lower trophic | San Joaquin | chla | ~ | flow | -0.1003 | 0.0591 | 0.0897 |
| Lower trophic | San Joaquin | chla | ~ | temp | 0.0180 | 0.0582 | 0.7570 |
| Lower trophic | San Joaquin | chla | ~ | turbid | -0.0260 | 0.0660 | 0.6938 |
| Lower trophic | San Joaquin | corbic | ~ | chla\_1 | 0.0614 | 0.0588 | 0.2968 |
| Lower trophic | San Joaquin | corbic | ~ | hzoop\_1 | -0.0238 | 0.0589 | 0.6866 |
| Lower trophic | San Joaquin | corbic | ~ | pzoop\_1 | -0.0414 | 0.0594 | 0.4861 |
| Lower trophic | San Joaquin | corbic | ~ | corbic\_1 | 0.3178 | 0.0541 | 0.0000 |
| Lower trophic | San Joaquin | corbic | ~ | flow | 0.0811 | 0.0574 | 0.1577 |
| Lower trophic | San Joaquin | corbic | ~ | temp | -0.0777 | 0.0571 | 0.1738 |
| Lower trophic | San Joaquin | corbic | ~ | turbid | 0.1846 | 0.0567 | 0.0011 |
| Lower trophic | San Joaquin | din | ~~ | din | 0.6504 | 0.0441 | 0.0000 |
| Lower trophic | San Joaquin | chla | ~~ | chla | 0.8517 | 0.0395 | 0.0000 |
| Lower trophic | San Joaquin | corbic | ~~ | corbic | 0.8078 | 0.0421 | 0.0000 |
| Lower trophic | San Joaquin | din | ~~ | corbic | -0.0251 | 0.0625 | 0.6877 |
| Lower trophic | San Joaquin | din\_1 | ~~ | din\_1 | 1.0000 | 0.0000 |  |
| Lower trophic | San Joaquin | din\_1 | ~~ | hzoop\_1 | 0.0278 | 0.0000 |  |
| Lower trophic | San Joaquin | din\_1 | ~~ | pzoop\_1 | 0.0681 | 0.0000 |  |
| Lower trophic | San Joaquin | din\_1 | ~~ | corbic\_1 | 0.0697 | 0.0000 |  |
| Lower trophic | San Joaquin | din\_1 | ~~ | flow | -0.0593 | 0.0000 |  |
| Lower trophic | San Joaquin | din\_1 | ~~ | temp | 0.0016 | 0.0000 |  |
| Lower trophic | San Joaquin | din\_1 | ~~ | turbid | 0.4203 | 0.0000 |  |
| Lower trophic | San Joaquin | din\_1 | ~~ | chla\_1 | -0.0661 | 0.0000 |  |
| Lower trophic | San Joaquin | hzoop\_1 | ~~ | hzoop\_1 | 1.0000 | 0.0000 |  |
| Lower trophic | San Joaquin | hzoop\_1 | ~~ | pzoop\_1 | 0.1941 | 0.0000 |  |
| Lower trophic | San Joaquin | hzoop\_1 | ~~ | corbic\_1 | 0.0744 | 0.0000 |  |
| Lower trophic | San Joaquin | hzoop\_1 | ~~ | flow | 0.1288 | 0.0000 |  |
| Lower trophic | San Joaquin | hzoop\_1 | ~~ | temp | 0.0587 | 0.0000 |  |
| Lower trophic | San Joaquin | hzoop\_1 | ~~ | turbid | -0.0164 | 0.0000 |  |
| Lower trophic | San Joaquin | hzoop\_1 | ~~ | chla\_1 | 0.1911 | 0.0000 |  |
| Lower trophic | San Joaquin | pzoop\_1 | ~~ | pzoop\_1 | 1.0000 | 0.0000 |  |
| Lower trophic | San Joaquin | pzoop\_1 | ~~ | corbic\_1 | -0.0063 | 0.0000 |  |
| Lower trophic | San Joaquin | pzoop\_1 | ~~ | flow | -0.0671 | 0.0000 |  |
| Lower trophic | San Joaquin | pzoop\_1 | ~~ | temp | 0.1698 | 0.0000 |  |
| Lower trophic | San Joaquin | pzoop\_1 | ~~ | turbid | 0.0369 | 0.0000 |  |
| Lower trophic | San Joaquin | pzoop\_1 | ~~ | chla\_1 | 0.2365 | 0.0000 |  |
| Lower trophic | San Joaquin | corbic\_1 | ~~ | corbic\_1 | 1.0000 | 0.0000 |  |
| Lower trophic | San Joaquin | corbic\_1 | ~~ | flow | 0.1161 | 0.0000 |  |
| Lower trophic | San Joaquin | corbic\_1 | ~~ | temp | -0.0887 | 0.0000 |  |
| Lower trophic | San Joaquin | corbic\_1 | ~~ | turbid | 0.2097 | 0.0000 |  |
| Lower trophic | San Joaquin | corbic\_1 | ~~ | chla\_1 | -0.0004 | 0.0000 |  |
| Lower trophic | San Joaquin | flow | ~~ | flow | 1.0000 | 0.0000 |  |
| Lower trophic | San Joaquin | flow | ~~ | temp | -0.0281 | 0.0000 |  |
| Lower trophic | San Joaquin | flow | ~~ | turbid | 0.0829 | 0.0000 |  |
| Lower trophic | San Joaquin | flow | ~~ | chla\_1 | -0.0816 | 0.0000 |  |
| Lower trophic | San Joaquin | temp | ~~ | temp | 1.0000 | 0.0000 |  |
| Lower trophic | San Joaquin | temp | ~~ | turbid | -0.0694 | 0.0000 |  |
| Lower trophic | San Joaquin | temp | ~~ | chla\_1 | 0.0675 | 0.0000 |  |
| Lower trophic | San Joaquin | turbid | ~~ | turbid | 1.0000 | 0.0000 |  |
| Lower trophic | San Joaquin | turbid | ~~ | chla\_1 | 0.0734 | 0.0000 |  |
| Lower trophic | San Joaquin | chla\_1 | ~~ | chla\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | San Pablo | chla | ~ | chla\_1 | 0.2043 | 0.0676 | 0.0025 |
| Zooplankton | San Pablo | chla | ~ | hcope\_1 | 0.0757 | 0.0697 | 0.2774 |
| Zooplankton | San Pablo | chla | ~ | amphi\_1 | 0.0294 | 0.0851 | 0.7303 |
| Zooplankton | San Pablo | chla | ~ | rotif\_1 | -0.0781 | 0.0730 | 0.2845 |
| Zooplankton | San Pablo | chla | ~ | potam\_1 | -0.0063 | 0.0695 | 0.9277 |
| Zooplankton | San Pablo | chla | ~ | flow | 0.1414 | 0.0854 | 0.0977 |
| Zooplankton | San Pablo | chla | ~ | turbid | -0.0901 | 0.0780 | 0.2482 |
| Zooplankton | San Pablo | chla | ~ | temp | 0.1580 | 0.0708 | 0.0256 |
| Zooplankton | San Pablo | hcope | ~ | chla\_1 | 0.0716 | 0.0655 | 0.2740 |
| Zooplankton | San Pablo | hcope | ~ | hcope\_1 | 0.2357 | 0.0683 | 0.0006 |
| Zooplankton | San Pablo | hcope | ~ | pcope\_1 | 0.0664 | 0.0697 | 0.3409 |
| Zooplankton | San Pablo | hcope | ~ | potam\_1 | -0.1573 | 0.0678 | 0.0203 |
| Zooplankton | San Pablo | hcope | ~ | flow | -0.0668 | 0.0768 | 0.3847 |
| Zooplankton | San Pablo | hcope | ~ | turbid | -0.0161 | 0.0751 | 0.8304 |
| Zooplankton | San Pablo | hcope | ~ | temp | -0.0505 | 0.0707 | 0.4750 |
| Zooplankton | San Pablo | hcope | ~ | estfish\_bsmt\_1 | -0.1302 | 0.0738 | 0.0777 |
| Zooplankton | San Pablo | amphi | ~ | chla\_1 | 0.0444 | 0.0322 | 0.1678 |
| Zooplankton | San Pablo | amphi | ~ | amphi\_1 | 0.7441 | 0.0295 | 0.0000 |
| Zooplankton | San Pablo | amphi | ~ | flow | -0.2492 | 0.0393 | 0.0000 |
| Zooplankton | San Pablo | amphi | ~ | turbid | -0.0106 | 0.0360 | 0.7673 |
| Zooplankton | San Pablo | amphi | ~ | temp | 0.0128 | 0.0336 | 0.7036 |
| Zooplankton | San Pablo | amphi | ~ | estfish\_bsmt\_1 | 0.0418 | 0.0342 | 0.2211 |
| Zooplankton | San Pablo | rotif | ~ | chla\_1 | -0.1723 | 0.0641 | 0.0072 |
| Zooplankton | San Pablo | rotif | ~ | rotif\_1 | 0.3775 | 0.0592 | 0.0000 |
| Zooplankton | San Pablo | rotif | ~ | flow | 0.1032 | 0.0746 | 0.1666 |
| Zooplankton | San Pablo | rotif | ~ | turbid | 0.0085 | 0.0733 | 0.9080 |
| Zooplankton | San Pablo | rotif | ~ | temp | 0.0551 | 0.0685 | 0.4210 |
| Zooplankton | San Pablo | rotif | ~ | estfish\_bsmt\_1 | 0.0085 | 0.0688 | 0.9015 |
| Zooplankton | San Pablo | pcope | ~ | hcope\_1 | 0.0459 | 0.0683 | 0.5021 |
| Zooplankton | San Pablo | pcope | ~ | pcope\_1 | 0.3014 | 0.0638 | 0.0000 |
| Zooplankton | San Pablo | pcope | ~ | potam\_1 | -0.1053 | 0.0662 | 0.1119 |
| Zooplankton | San Pablo | pcope | ~ | flow | 0.2014 | 0.0728 | 0.0056 |
| Zooplankton | San Pablo | pcope | ~ | turbid | 0.0808 | 0.0723 | 0.2635 |
| Zooplankton | San Pablo | pcope | ~ | temp | 0.1521 | 0.0677 | 0.0247 |
| Zooplankton | San Pablo | pcope | ~ | estfish\_bsmt\_1 | -0.0076 | 0.0722 | 0.9162 |
| Zooplankton | San Pablo | chla | ~~ | chla | 0.8987 | 0.0402 | 0.0000 |
| Zooplankton | San Pablo | hcope | ~~ | hcope | 0.8518 | 0.0455 | 0.0000 |
| Zooplankton | San Pablo | amphi | ~~ | amphi | 0.1932 | 0.0193 | 0.0000 |
| Zooplankton | San Pablo | rotif | ~~ | rotif | 0.8074 | 0.0484 | 0.0000 |
| Zooplankton | San Pablo | pcope | ~~ | pcope | 0.8022 | 0.0488 | 0.0000 |
| Zooplankton | San Pablo | chla | ~~ | hcope | 0.0567 | 0.0719 | 0.4302 |
| Zooplankton | San Pablo | chla | ~~ | amphi | 0.0509 | 0.0720 | 0.4791 |
| Zooplankton | San Pablo | chla | ~~ | rotif | 0.1034 | 0.0714 | 0.1477 |
| Zooplankton | San Pablo | chla | ~~ | pcope | -0.0190 | 0.0721 | 0.7928 |
| Zooplankton | San Pablo | hcope | ~~ | amphi | -0.0262 | 0.0721 | 0.7162 |
| Zooplankton | San Pablo | hcope | ~~ | rotif | 0.0404 | 0.0721 | 0.5752 |
| Zooplankton | San Pablo | hcope | ~~ | pcope | -0.2385 | 0.0681 | 0.0005 |
| Zooplankton | San Pablo | amphi | ~~ | rotif | -0.0812 | 0.0717 | 0.2573 |
| Zooplankton | San Pablo | amphi | ~~ | pcope | -0.0215 | 0.0721 | 0.7655 |
| Zooplankton | San Pablo | rotif | ~~ | pcope | 0.0677 | 0.0718 | 0.3459 |
| Zooplankton | San Pablo | chla\_1 | ~~ | chla\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | San Pablo | chla\_1 | ~~ | hcope\_1 | 0.0931 | 0.0000 |  |
| Zooplankton | San Pablo | chla\_1 | ~~ | amphi\_1 | 0.0826 | 0.0000 |  |
| Zooplankton | San Pablo | chla\_1 | ~~ | rotif\_1 | 0.0275 | 0.0000 |  |
| Zooplankton | San Pablo | chla\_1 | ~~ | potam\_1 | 0.0189 | 0.0000 |  |
| Zooplankton | San Pablo | chla\_1 | ~~ | flow | 0.0450 | 0.0000 |  |
| Zooplankton | San Pablo | chla\_1 | ~~ | turbid | -0.0746 | 0.0000 |  |
| Zooplankton | San Pablo | chla\_1 | ~~ | temp | 0.0209 | 0.0000 |  |
| Zooplankton | San Pablo | chla\_1 | ~~ | pcope\_1 | 0.0158 | 0.0000 |  |
| Zooplankton | San Pablo | chla\_1 | ~~ | estfish\_bsmt\_1 | -0.0947 | 0.0000 |  |
| Zooplankton | San Pablo | hcope\_1 | ~~ | hcope\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | San Pablo | hcope\_1 | ~~ | amphi\_1 | 0.0954 | 0.0000 |  |
| Zooplankton | San Pablo | hcope\_1 | ~~ | rotif\_1 | 0.0683 | 0.0000 |  |
| Zooplankton | San Pablo | hcope\_1 | ~~ | potam\_1 | -0.1153 | 0.0000 |  |
| Zooplankton | San Pablo | hcope\_1 | ~~ | flow | -0.0409 | 0.0000 |  |
| Zooplankton | San Pablo | hcope\_1 | ~~ | turbid | -0.0195 | 0.0000 |  |
| Zooplankton | San Pablo | hcope\_1 | ~~ | temp | 0.1573 | 0.0000 |  |
| Zooplankton | San Pablo | hcope\_1 | ~~ | pcope\_1 | -0.1426 | 0.0000 |  |
| Zooplankton | San Pablo | hcope\_1 | ~~ | estfish\_bsmt\_1 | -0.2515 | 0.0000 |  |
| Zooplankton | San Pablo | amphi\_1 | ~~ | amphi\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | San Pablo | amphi\_1 | ~~ | rotif\_1 | -0.2845 | 0.0000 |  |
| Zooplankton | San Pablo | amphi\_1 | ~~ | potam\_1 | -0.0711 | 0.0000 |  |
| Zooplankton | San Pablo | amphi\_1 | ~~ | flow | -0.5277 | 0.0000 |  |
| Zooplankton | San Pablo | amphi\_1 | ~~ | turbid | -0.3219 | 0.0000 |  |
| Zooplankton | San Pablo | amphi\_1 | ~~ | temp | 0.0788 | 0.0000 |  |
| Zooplankton | San Pablo | amphi\_1 | ~~ | pcope\_1 | -0.2108 | 0.0000 |  |
| Zooplankton | San Pablo | amphi\_1 | ~~ | estfish\_bsmt\_1 | -0.2771 | 0.0000 |  |
| Zooplankton | San Pablo | rotif\_1 | ~~ | rotif\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | San Pablo | rotif\_1 | ~~ | potam\_1 | -0.1383 | 0.0000 |  |
| Zooplankton | San Pablo | rotif\_1 | ~~ | flow | 0.1417 | 0.0000 |  |
| Zooplankton | San Pablo | rotif\_1 | ~~ | turbid | -0.0376 | 0.0000 |  |
| Zooplankton | San Pablo | rotif\_1 | ~~ | temp | 0.0637 | 0.0000 |  |
| Zooplankton | San Pablo | rotif\_1 | ~~ | pcope\_1 | 0.1840 | 0.0000 |  |
| Zooplankton | San Pablo | rotif\_1 | ~~ | estfish\_bsmt\_1 | -0.0426 | 0.0000 |  |
| Zooplankton | San Pablo | potam\_1 | ~~ | potam\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | San Pablo | potam\_1 | ~~ | flow | 0.0482 | 0.0000 |  |
| Zooplankton | San Pablo | potam\_1 | ~~ | turbid | 0.0636 | 0.0000 |  |
| Zooplankton | San Pablo | potam\_1 | ~~ | temp | -0.0710 | 0.0000 |  |
| Zooplankton | San Pablo | potam\_1 | ~~ | pcope\_1 | -0.1363 | 0.0000 |  |
| Zooplankton | San Pablo | potam\_1 | ~~ | estfish\_bsmt\_1 | 0.2039 | 0.0000 |  |
| Zooplankton | San Pablo | flow | ~~ | flow | 1.0000 | 0.0000 |  |
| Zooplankton | San Pablo | flow | ~~ | turbid | 0.4229 | 0.0000 |  |
| Zooplankton | San Pablo | flow | ~~ | temp | -0.1983 | 0.0000 |  |
| Zooplankton | San Pablo | flow | ~~ | pcope\_1 | 0.1709 | 0.0000 |  |
| Zooplankton | San Pablo | flow | ~~ | estfish\_bsmt\_1 | 0.2587 | 0.0000 |  |
| Zooplankton | San Pablo | turbid | ~~ | turbid | 1.0000 | 0.0000 |  |
| Zooplankton | San Pablo | turbid | ~~ | temp | -0.2356 | 0.0000 |  |
| Zooplankton | San Pablo | turbid | ~~ | pcope\_1 | 0.0777 | 0.0000 |  |
| Zooplankton | San Pablo | turbid | ~~ | estfish\_bsmt\_1 | 0.1749 | 0.0000 |  |
| Zooplankton | San Pablo | temp | ~~ | temp | 1.0000 | 0.0000 |  |
| Zooplankton | San Pablo | temp | ~~ | pcope\_1 | -0.0394 | 0.0000 |  |
| Zooplankton | San Pablo | temp | ~~ | estfish\_bsmt\_1 | -0.2456 | 0.0000 |  |
| Zooplankton | San Pablo | pcope\_1 | ~~ | pcope\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | San Pablo | pcope\_1 | ~~ | estfish\_bsmt\_1 | -0.0871 | 0.0000 |  |
| Zooplankton | San Pablo | estfish\_bsmt\_1 | ~~ | estfish\_bsmt\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | Suisun | chla | ~ | chla\_1 | 0.1474 | 0.0684 | 0.0312 |
| Zooplankton | Suisun | chla | ~ | hcope\_1 | 0.0711 | 0.0698 | 0.3083 |
| Zooplankton | Suisun | chla | ~ | amphi\_1 | 0.1379 | 0.0697 | 0.0480 |
| Zooplankton | Suisun | chla | ~ | rotif\_1 | 0.1108 | 0.0679 | 0.1024 |
| Zooplankton | Suisun | chla | ~ | potam\_1 | -0.0505 | 0.0737 | 0.4934 |
| Zooplankton | Suisun | chla | ~ | flow | 0.0826 | 0.0719 | 0.2505 |
| Zooplankton | Suisun | chla | ~ | turbid | 0.0694 | 0.0741 | 0.3487 |
| Zooplankton | Suisun | chla | ~ | temp | -0.1051 | 0.0657 | 0.1097 |
| Zooplankton | Suisun | chla | ~ | mysid\_1 | -0.1691 | 0.0696 | 0.0151 |
| Zooplankton | Suisun | hcope | ~ | chla\_1 | 0.0408 | 0.0656 | 0.5339 |
| Zooplankton | Suisun | hcope | ~ | hcope\_1 | 0.3078 | 0.0650 | 0.0000 |
| Zooplankton | Suisun | hcope | ~ | pcope\_1 | -0.1045 | 0.0639 | 0.1019 |
| Zooplankton | Suisun | hcope | ~ | mysid\_1 | 0.0493 | 0.0708 | 0.4858 |
| Zooplankton | Suisun | hcope | ~ | potam\_1 | -0.1706 | 0.0668 | 0.0107 |
| Zooplankton | Suisun | hcope | ~ | flow | -0.1349 | 0.0693 | 0.0518 |
| Zooplankton | Suisun | hcope | ~ | turbid | -0.1192 | 0.0708 | 0.0926 |
| Zooplankton | Suisun | hcope | ~ | temp | 0.0647 | 0.0639 | 0.3109 |
| Zooplankton | Suisun | hcope | ~ | estfish\_bsmt\_1 | 0.0502 | 0.0633 | 0.4277 |
| Zooplankton | Suisun | hcope | ~ | rotif\_1 | 0.1916 | 0.0634 | 0.0025 |
| Zooplankton | Suisun | amphi | ~ | chla\_1 | -0.0427 | 0.0357 | 0.2310 |
| Zooplankton | Suisun | amphi | ~ | amphi\_1 | 0.7866 | 0.0263 | 0.0000 |
| Zooplankton | Suisun | amphi | ~ | mysid\_1 | 0.0765 | 0.0366 | 0.0366 |
| Zooplankton | Suisun | amphi | ~ | flow | 0.0076 | 0.0371 | 0.8368 |
| Zooplankton | Suisun | amphi | ~ | turbid | -0.1031 | 0.0387 | 0.0078 |
| Zooplankton | Suisun | amphi | ~ | temp | -0.0998 | 0.0355 | 0.0049 |
| Zooplankton | Suisun | amphi | ~ | estfish\_bsmt\_1 | -0.1761 | 0.0363 | 0.0000 |
| Zooplankton | Suisun | rotif | ~ | chla\_1 | 0.0193 | 0.0618 | 0.7554 |
| Zooplankton | Suisun | rotif | ~ | rotif\_1 | 0.3346 | 0.0585 | 0.0000 |
| Zooplankton | Suisun | rotif | ~ | flow | 0.2159 | 0.0631 | 0.0006 |
| Zooplankton | Suisun | rotif | ~ | turbid | -0.0960 | 0.0636 | 0.1313 |
| Zooplankton | Suisun | rotif | ~ | temp | 0.0275 | 0.0610 | 0.6518 |
| Zooplankton | Suisun | rotif | ~ | estfish\_bsmt\_1 | -0.1808 | 0.0580 | 0.0018 |
| Zooplankton | Suisun | pcope | ~ | hcope\_1 | -0.1253 | 0.0572 | 0.0285 |
| Zooplankton | Suisun | pcope | ~ | pcope\_1 | 0.4045 | 0.0515 | 0.0000 |
| Zooplankton | Suisun | pcope | ~ | mysid\_1 | 0.1146 | 0.0610 | 0.0604 |
| Zooplankton | Suisun | pcope | ~ | potam\_1 | 0.0459 | 0.0604 | 0.4468 |
| Zooplankton | Suisun | pcope | ~ | flow | 0.1307 | 0.0599 | 0.0291 |
| Zooplankton | Suisun | pcope | ~ | turbid | -0.1378 | 0.0614 | 0.0248 |
| Zooplankton | Suisun | pcope | ~ | temp | 0.2276 | 0.0533 | 0.0000 |
| Zooplankton | Suisun | pcope | ~ | estfish\_bsmt\_1 | 0.0262 | 0.0564 | 0.6422 |
| Zooplankton | Suisun | pcope | ~ | rotif\_1 | 0.1692 | 0.0557 | 0.0024 |
| Zooplankton | Suisun | mysid | ~ | chla\_1 | 0.1795 | 0.0569 | 0.0016 |
| Zooplankton | Suisun | mysid | ~ | hcope\_1 | 0.0695 | 0.0594 | 0.2422 |
| Zooplankton | Suisun | mysid | ~ | pcope\_1 | 0.1138 | 0.0561 | 0.0427 |
| Zooplankton | Suisun | mysid | ~ | amphi\_1 | -0.1320 | 0.0589 | 0.0249 |
| Zooplankton | Suisun | mysid | ~ | mysid\_1 | 0.3722 | 0.0583 | 0.0000 |
| Zooplankton | Suisun | mysid | ~ | flow | -0.1675 | 0.0581 | 0.0039 |
| Zooplankton | Suisun | mysid | ~ | turbid | 0.2577 | 0.0612 | 0.0000 |
| Zooplankton | Suisun | mysid | ~ | temp | 0.1020 | 0.0564 | 0.0702 |
| Zooplankton | Suisun | mysid | ~ | estfish\_bsmt\_1 | -0.0265 | 0.0581 | 0.6485 |
| Zooplankton | Suisun | chla | ~~ | chla | 0.8525 | 0.0427 | 0.0000 |
| Zooplankton | Suisun | hcope | ~~ | hcope | 0.7913 | 0.0460 | 0.0000 |
| Zooplankton | Suisun | amphi | ~~ | amphi | 0.2487 | 0.0231 | 0.0000 |
| Zooplankton | Suisun | rotif | ~~ | rotif | 0.7361 | 0.0479 | 0.0000 |
| Zooplankton | Suisun | pcope | ~~ | pcope | 0.5993 | 0.0459 | 0.0000 |
| Zooplankton | Suisun | mysid | ~~ | mysid | 0.6220 | 0.0469 | 0.0000 |
| Zooplankton | Suisun | chla | ~~ | hcope | 0.2176 | 0.0650 | 0.0008 |
| Zooplankton | Suisun | chla | ~~ | amphi | -0.0149 | 0.0682 | 0.8265 |
| Zooplankton | Suisun | chla | ~~ | rotif | 0.1833 | 0.0659 | 0.0054 |
| Zooplankton | Suisun | chla | ~~ | pcope | 0.0220 | 0.0682 | 0.7464 |
| Zooplankton | Suisun | chla | ~~ | mysid | 0.1326 | 0.0670 | 0.0478 |
| Zooplankton | Suisun | hcope | ~~ | amphi | -0.0818 | 0.0677 | 0.2274 |
| Zooplankton | Suisun | hcope | ~~ | rotif | -0.0176 | 0.0682 | 0.7962 |
| Zooplankton | Suisun | hcope | ~~ | pcope | 0.1178 | 0.0673 | 0.0797 |
| Zooplankton | Suisun | hcope | ~~ | mysid | 0.3066 | 0.0618 | 0.0000 |
| Zooplankton | Suisun | amphi | ~~ | rotif | 0.0899 | 0.0676 | 0.1838 |
| Zooplankton | Suisun | amphi | ~~ | pcope | 0.1690 | 0.0663 | 0.0107 |
| Zooplankton | Suisun | amphi | ~~ | mysid | -0.0963 | 0.0676 | 0.1542 |
| Zooplankton | Suisun | rotif | ~~ | pcope | 0.0949 | 0.0676 | 0.1602 |
| Zooplankton | Suisun | rotif | ~~ | mysid | 0.0442 | 0.0681 | 0.5165 |
| Zooplankton | Suisun | pcope | ~~ | mysid | 0.0915 | 0.0676 | 0.1763 |
| Zooplankton | Suisun | chla\_1 | ~~ | chla\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | Suisun | chla\_1 | ~~ | hcope\_1 | 0.2085 | 0.0000 |  |
| Zooplankton | Suisun | chla\_1 | ~~ | amphi\_1 | 0.1632 | 0.0000 |  |
| Zooplankton | Suisun | chla\_1 | ~~ | rotif\_1 | 0.2629 | 0.0000 |  |
| Zooplankton | Suisun | chla\_1 | ~~ | potam\_1 | -0.0333 | 0.0000 |  |
| Zooplankton | Suisun | chla\_1 | ~~ | flow | 0.1784 | 0.0000 |  |
| Zooplankton | Suisun | chla\_1 | ~~ | turbid | 0.0038 | 0.0000 |  |
| Zooplankton | Suisun | chla\_1 | ~~ | temp | -0.1893 | 0.0000 |  |
| Zooplankton | Suisun | chla\_1 | ~~ | mysid\_1 | 0.0814 | 0.0000 |  |
| Zooplankton | Suisun | chla\_1 | ~~ | pcope\_1 | 0.0554 | 0.0000 |  |
| Zooplankton | Suisun | chla\_1 | ~~ | estfish\_bsmt\_1 | -0.0223 | 0.0000 |  |
| Zooplankton | Suisun | hcope\_1 | ~~ | hcope\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | Suisun | hcope\_1 | ~~ | amphi\_1 | -0.0564 | 0.0000 |  |
| Zooplankton | Suisun | hcope\_1 | ~~ | rotif\_1 | -0.0131 | 0.0000 |  |
| Zooplankton | Suisun | hcope\_1 | ~~ | potam\_1 | -0.2747 | 0.0000 |  |
| Zooplankton | Suisun | hcope\_1 | ~~ | flow | 0.0143 | 0.0000 |  |
| Zooplankton | Suisun | hcope\_1 | ~~ | turbid | 0.1907 | 0.0000 |  |
| Zooplankton | Suisun | hcope\_1 | ~~ | temp | -0.0464 | 0.0000 |  |
| Zooplankton | Suisun | hcope\_1 | ~~ | mysid\_1 | 0.3694 | 0.0000 |  |
| Zooplankton | Suisun | hcope\_1 | ~~ | pcope\_1 | 0.0531 | 0.0000 |  |
| Zooplankton | Suisun | hcope\_1 | ~~ | estfish\_bsmt\_1 | 0.0084 | 0.0000 |  |
| Zooplankton | Suisun | amphi\_1 | ~~ | amphi\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | Suisun | amphi\_1 | ~~ | rotif\_1 | 0.2319 | 0.0000 |  |
| Zooplankton | Suisun | amphi\_1 | ~~ | potam\_1 | 0.3420 | 0.0000 |  |
| Zooplankton | Suisun | amphi\_1 | ~~ | flow | -0.0576 | 0.0000 |  |
| Zooplankton | Suisun | amphi\_1 | ~~ | turbid | -0.3454 | 0.0000 |  |
| Zooplankton | Suisun | amphi\_1 | ~~ | temp | 0.0837 | 0.0000 |  |
| Zooplankton | Suisun | amphi\_1 | ~~ | mysid\_1 | -0.2408 | 0.0000 |  |
| Zooplankton | Suisun | amphi\_1 | ~~ | pcope\_1 | 0.2147 | 0.0000 |  |
| Zooplankton | Suisun | amphi\_1 | ~~ | estfish\_bsmt\_1 | -0.3082 | 0.0000 |  |
| Zooplankton | Suisun | rotif\_1 | ~~ | rotif\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | Suisun | rotif\_1 | ~~ | potam\_1 | -0.0484 | 0.0000 |  |
| Zooplankton | Suisun | rotif\_1 | ~~ | flow | 0.2172 | 0.0000 |  |
| Zooplankton | Suisun | rotif\_1 | ~~ | turbid | -0.1159 | 0.0000 |  |
| Zooplankton | Suisun | rotif\_1 | ~~ | temp | -0.0435 | 0.0000 |  |
| Zooplankton | Suisun | rotif\_1 | ~~ | mysid\_1 | -0.0142 | 0.0000 |  |
| Zooplankton | Suisun | rotif\_1 | ~~ | pcope\_1 | 0.2869 | 0.0000 |  |
| Zooplankton | Suisun | rotif\_1 | ~~ | estfish\_bsmt\_1 | -0.1522 | 0.0000 |  |
| Zooplankton | Suisun | potam\_1 | ~~ | potam\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | Suisun | potam\_1 | ~~ | flow | -0.3025 | 0.0000 |  |
| Zooplankton | Suisun | potam\_1 | ~~ | turbid | -0.3648 | 0.0000 |  |
| Zooplankton | Suisun | potam\_1 | ~~ | temp | 0.0305 | 0.0000 |  |
| Zooplankton | Suisun | potam\_1 | ~~ | mysid\_1 | -0.2872 | 0.0000 |  |
| Zooplankton | Suisun | potam\_1 | ~~ | pcope\_1 | 0.0818 | 0.0000 |  |
| Zooplankton | Suisun | potam\_1 | ~~ | estfish\_bsmt\_1 | -0.1156 | 0.0000 |  |
| Zooplankton | Suisun | flow | ~~ | flow | 1.0000 | 0.0000 |  |
| Zooplankton | Suisun | flow | ~~ | turbid | 0.2973 | 0.0000 |  |
| Zooplankton | Suisun | flow | ~~ | temp | -0.1584 | 0.0000 |  |
| Zooplankton | Suisun | flow | ~~ | mysid\_1 | -0.0603 | 0.0000 |  |
| Zooplankton | Suisun | flow | ~~ | pcope\_1 | -0.0027 | 0.0000 |  |
| Zooplankton | Suisun | flow | ~~ | estfish\_bsmt\_1 | -0.1207 | 0.0000 |  |
| Zooplankton | Suisun | turbid | ~~ | turbid | 1.0000 | 0.0000 |  |
| Zooplankton | Suisun | turbid | ~~ | temp | -0.1942 | 0.0000 |  |
| Zooplankton | Suisun | turbid | ~~ | mysid\_1 | 0.2132 | 0.0000 |  |
| Zooplankton | Suisun | turbid | ~~ | pcope\_1 | -0.2165 | 0.0000 |  |
| Zooplankton | Suisun | turbid | ~~ | estfish\_bsmt\_1 | 0.1250 | 0.0000 |  |
| Zooplankton | Suisun | temp | ~~ | temp | 1.0000 | 0.0000 |  |
| Zooplankton | Suisun | temp | ~~ | mysid\_1 | 0.0308 | 0.0000 |  |
| Zooplankton | Suisun | temp | ~~ | pcope\_1 | 0.1468 | 0.0000 |  |
| Zooplankton | Suisun | temp | ~~ | estfish\_bsmt\_1 | -0.0425 | 0.0000 |  |
| Zooplankton | Suisun | mysid\_1 | ~~ | mysid\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | Suisun | mysid\_1 | ~~ | pcope\_1 | 0.1006 | 0.0000 |  |
| Zooplankton | Suisun | mysid\_1 | ~~ | estfish\_bsmt\_1 | 0.2646 | 0.0000 |  |
| Zooplankton | Suisun | pcope\_1 | ~~ | pcope\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | Suisun | pcope\_1 | ~~ | estfish\_bsmt\_1 | -0.0836 | 0.0000 |  |
| Zooplankton | Suisun | estfish\_bsmt\_1 | ~~ | estfish\_bsmt\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | Sacramento | chla | ~ | chla\_1 | 0.1487 | 0.0674 | 0.0274 |
| Zooplankton | Sacramento | chla | ~ | hcope\_1 | -0.0245 | 0.0750 | 0.7442 |
| Zooplankton | Sacramento | chla | ~ | clad\_1 | 0.1861 | 0.0750 | 0.0130 |
| Zooplankton | Sacramento | chla | ~ | amphi\_1 | 0.0556 | 0.0677 | 0.4119 |
| Zooplankton | Sacramento | chla | ~ | rotif\_1 | -0.0436 | 0.0713 | 0.5412 |
| Zooplankton | Sacramento | chla | ~ | corbic\_1 | -0.0241 | 0.0675 | 0.7209 |
| Zooplankton | Sacramento | chla | ~ | flow | -0.0298 | 0.0768 | 0.6985 |
| Zooplankton | Sacramento | chla | ~ | turbid | 0.0993 | 0.0705 | 0.1591 |
| Zooplankton | Sacramento | chla | ~ | temp | 0.1246 | 0.0700 | 0.0750 |
| Zooplankton | Sacramento | hcope | ~ | chla\_1 | -0.0119 | 0.0510 | 0.8162 |
| Zooplankton | Sacramento | hcope | ~ | hcope\_1 | 0.1275 | 0.0713 | 0.0737 |
| Zooplankton | Sacramento | hcope | ~ | pcope\_1 | -0.1308 | 0.0589 | 0.0264 |
| Zooplankton | Sacramento | hcope | ~ | mysid\_1 | 0.0575 | 0.0750 | 0.4430 |
| Zooplankton | Sacramento | hcope | ~ | corbic\_1 | 0.1252 | 0.0511 | 0.0142 |
| Zooplankton | Sacramento | hcope | ~ | flow | -0.4977 | 0.0537 | 0.0000 |
| Zooplankton | Sacramento | hcope | ~ | turbid | 0.1148 | 0.0603 | 0.0570 |
| Zooplankton | Sacramento | hcope | ~ | temp | 0.1271 | 0.0566 | 0.0248 |
| Zooplankton | Sacramento | hcope | ~ | estfish\_bsmt\_1 | 0.0097 | 0.0606 | 0.8724 |
| Zooplankton | Sacramento | clad | ~ | chla\_1 | -0.0349 | 0.0553 | 0.5279 |
| Zooplankton | Sacramento | clad | ~ | clad\_1 | 0.3562 | 0.0551 | 0.0000 |
| Zooplankton | Sacramento | clad | ~ | pcope\_1 | 0.0156 | 0.0575 | 0.7858 |
| Zooplankton | Sacramento | clad | ~ | flow | 0.4278 | 0.0569 | 0.0000 |
| Zooplankton | Sacramento | clad | ~ | turbid | 0.0036 | 0.0588 | 0.9515 |
| Zooplankton | Sacramento | clad | ~ | temp | 0.0500 | 0.0562 | 0.3737 |
| Zooplankton | Sacramento | clad | ~ | estfish\_bsmt\_1 | 0.0190 | 0.0588 | 0.7471 |
| Zooplankton | Sacramento | amphi | ~ | chla\_1 | 0.0575 | 0.0589 | 0.3289 |
| Zooplankton | Sacramento | amphi | ~ | amphi\_1 | 0.5137 | 0.0479 | 0.0000 |
| Zooplankton | Sacramento | amphi | ~ | flow | 0.0560 | 0.0651 | 0.3900 |
| Zooplankton | Sacramento | amphi | ~ | turbid | -0.0209 | 0.0615 | 0.7334 |
| Zooplankton | Sacramento | amphi | ~ | temp | -0.0437 | 0.0609 | 0.4733 |
| Zooplankton | Sacramento | amphi | ~ | estfish\_bsmt\_1 | -0.0788 | 0.0638 | 0.2168 |
| Zooplankton | Sacramento | rotif | ~ | chla\_1 | -0.0809 | 0.0618 | 0.1904 |
| Zooplankton | Sacramento | rotif | ~ | rotif\_1 | 0.1514 | 0.0617 | 0.0141 |
| Zooplankton | Sacramento | rotif | ~ | flow | 0.3815 | 0.0631 | 0.0000 |
| Zooplankton | Sacramento | rotif | ~ | turbid | -0.0500 | 0.0644 | 0.4371 |
| Zooplankton | Sacramento | rotif | ~ | temp | -0.0735 | 0.0633 | 0.2453 |
| Zooplankton | Sacramento | rotif | ~ | estfish\_bsmt\_1 | -0.0153 | 0.0664 | 0.8183 |
| Zooplankton | Sacramento | pcope | ~ | hcope\_1 | -0.1137 | 0.0798 | 0.1541 |
| Zooplankton | Sacramento | pcope | ~ | pcope\_1 | 0.2568 | 0.0635 | 0.0001 |
| Zooplankton | Sacramento | pcope | ~ | clad\_1 | -0.1284 | 0.0663 | 0.0528 |
| Zooplankton | Sacramento | pcope | ~ | mysid\_1 | 0.0593 | 0.0841 | 0.4803 |
| Zooplankton | Sacramento | pcope | ~ | corbic\_1 | 0.0593 | 0.0604 | 0.3263 |
| Zooplankton | Sacramento | pcope | ~ | flow | -0.1825 | 0.0702 | 0.0094 |
| Zooplankton | Sacramento | pcope | ~ | turbid | -0.2354 | 0.0662 | 0.0004 |
| Zooplankton | Sacramento | pcope | ~ | temp | 0.0702 | 0.0644 | 0.2754 |
| Zooplankton | Sacramento | pcope | ~ | estfish\_bsmt\_1 | -0.0648 | 0.0679 | 0.3403 |
| Zooplankton | Sacramento | pcope | ~ | chla\_1 | 0.1408 | 0.0615 | 0.0220 |
| Zooplankton | Sacramento | mysid | ~ | hcope\_1 | -0.0181 | 0.0716 | 0.8000 |
| Zooplankton | Sacramento | mysid | ~ | pcope\_1 | -0.0674 | 0.0595 | 0.2567 |
| Zooplankton | Sacramento | mysid | ~ | mysid\_1 | 0.1746 | 0.0732 | 0.0171 |
| Zooplankton | Sacramento | mysid | ~ | amphi\_1 | -0.0800 | 0.0509 | 0.1159 |
| Zooplankton | Sacramento | mysid | ~ | flow | -0.4276 | 0.0569 | 0.0000 |
| Zooplankton | Sacramento | mysid | ~ | turbid | 0.2362 | 0.0602 | 0.0001 |
| Zooplankton | Sacramento | mysid | ~ | temp | 0.0851 | 0.0573 | 0.1372 |
| Zooplankton | Sacramento | mysid | ~ | estfish\_bsmt\_1 | 0.0617 | 0.0612 | 0.3130 |
| Zooplankton | Sacramento | chla | ~~ | chla | 0.9072 | 0.0374 | 0.0000 |
| Zooplankton | Sacramento | hcope | ~~ | hcope | 0.5949 | 0.0471 | 0.0000 |
| Zooplankton | Sacramento | clad | ~~ | clad | 0.6076 | 0.0475 | 0.0000 |
| Zooplankton | Sacramento | amphi | ~~ | amphi | 0.7131 | 0.0485 | 0.0000 |
| Zooplankton | Sacramento | rotif | ~~ | rotif | 0.7730 | 0.0483 | 0.0000 |
| Zooplankton | Sacramento | pcope | ~~ | pcope | 0.7542 | 0.0485 | 0.0000 |
| Zooplankton | Sacramento | mysid | ~~ | mysid | 0.6195 | 0.0479 | 0.0000 |
| Zooplankton | Sacramento | chla | ~~ | hcope | 0.0339 | 0.0698 | 0.6272 |
| Zooplankton | Sacramento | chla | ~~ | clad | 0.1754 | 0.0677 | 0.0096 |
| Zooplankton | Sacramento | chla | ~~ | amphi | 0.0255 | 0.0698 | 0.7151 |
| Zooplankton | Sacramento | chla | ~~ | rotif | 0.1079 | 0.0690 | 0.1181 |
| Zooplankton | Sacramento | chla | ~~ | pcope | -0.0658 | 0.0695 | 0.3439 |
| Zooplankton | Sacramento | chla | ~~ | mysid | 0.1153 | 0.0689 | 0.0943 |
| Zooplankton | Sacramento | hcope | ~~ | clad | -0.1212 | 0.0688 | 0.0782 |
| Zooplankton | Sacramento | hcope | ~~ | amphi | 0.0831 | 0.0694 | 0.2307 |
| Zooplankton | Sacramento | hcope | ~~ | rotif | -0.0134 | 0.0698 | 0.8481 |
| Zooplankton | Sacramento | hcope | ~~ | pcope | 0.1099 | 0.0690 | 0.1112 |
| Zooplankton | Sacramento | hcope | ~~ | mysid | 0.3949 | 0.0590 | 0.0000 |
| Zooplankton | Sacramento | clad | ~~ | amphi | 0.0062 | 0.0698 | 0.9296 |
| Zooplankton | Sacramento | clad | ~~ | rotif | 0.1420 | 0.0684 | 0.0379 |
| Zooplankton | Sacramento | clad | ~~ | pcope | -0.0687 | 0.0695 | 0.3229 |
| Zooplankton | Sacramento | clad | ~~ | mysid | -0.1335 | 0.0686 | 0.0516 |
| Zooplankton | Sacramento | amphi | ~~ | rotif | -0.1795 | 0.0676 | 0.0079 |
| Zooplankton | Sacramento | amphi | ~~ | pcope | -0.1251 | 0.0687 | 0.0687 |
| Zooplankton | Sacramento | amphi | ~~ | mysid | 0.1489 | 0.0683 | 0.0293 |
| Zooplankton | Sacramento | rotif | ~~ | pcope | 0.1818 | 0.0675 | 0.0071 |
| Zooplankton | Sacramento | rotif | ~~ | mysid | 0.0033 | 0.0698 | 0.9619 |
| Zooplankton | Sacramento | pcope | ~~ | mysid | 0.1957 | 0.0672 | 0.0036 |
| Zooplankton | Sacramento | chla\_1 | ~~ | chla\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | Sacramento | chla\_1 | ~~ | hcope\_1 | 0.0323 | 0.0000 |  |
| Zooplankton | Sacramento | chla\_1 | ~~ | clad\_1 | 0.1603 | 0.0000 |  |
| Zooplankton | Sacramento | chla\_1 | ~~ | amphi\_1 | -0.0234 | 0.0000 |  |
| Zooplankton | Sacramento | chla\_1 | ~~ | rotif\_1 | -0.0038 | 0.0000 |  |
| Zooplankton | Sacramento | chla\_1 | ~~ | corbic\_1 | -0.1008 | 0.0000 |  |
| Zooplankton | Sacramento | chla\_1 | ~~ | flow | 0.0939 | 0.0000 |  |
| Zooplankton | Sacramento | chla\_1 | ~~ | turbid | 0.1184 | 0.0000 |  |
| Zooplankton | Sacramento | chla\_1 | ~~ | temp | -0.0308 | 0.0000 |  |
| Zooplankton | Sacramento | chla\_1 | ~~ | pcope\_1 | -0.1408 | 0.0000 |  |
| Zooplankton | Sacramento | chla\_1 | ~~ | mysid\_1 | 0.0978 | 0.0000 |  |
| Zooplankton | Sacramento | chla\_1 | ~~ | estfish\_bsmt\_1 | -0.0117 | 0.0000 |  |
| Zooplankton | Sacramento | hcope\_1 | ~~ | hcope\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | Sacramento | hcope\_1 | ~~ | clad\_1 | -0.3390 | 0.0000 |  |
| Zooplankton | Sacramento | hcope\_1 | ~~ | amphi\_1 | -0.0206 | 0.0000 |  |
| Zooplankton | Sacramento | hcope\_1 | ~~ | rotif\_1 | -0.2335 | 0.0000 |  |
| Zooplankton | Sacramento | hcope\_1 | ~~ | corbic\_1 | 0.0427 | 0.0000 |  |
| Zooplankton | Sacramento | hcope\_1 | ~~ | flow | -0.3322 | 0.0000 |  |
| Zooplankton | Sacramento | hcope\_1 | ~~ | turbid | 0.1964 | 0.0000 |  |
| Zooplankton | Sacramento | hcope\_1 | ~~ | temp | 0.2201 | 0.0000 |  |
| Zooplankton | Sacramento | hcope\_1 | ~~ | pcope\_1 | 0.2074 | 0.0000 |  |
| Zooplankton | Sacramento | hcope\_1 | ~~ | mysid\_1 | 0.6384 | 0.0000 |  |
| Zooplankton | Sacramento | hcope\_1 | ~~ | estfish\_bsmt\_1 | 0.2948 | 0.0000 |  |
| Zooplankton | Sacramento | clad\_1 | ~~ | clad\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | Sacramento | clad\_1 | ~~ | amphi\_1 | 0.0988 | 0.0000 |  |
| Zooplankton | Sacramento | clad\_1 | ~~ | rotif\_1 | 0.3174 | 0.0000 |  |
| Zooplankton | Sacramento | clad\_1 | ~~ | corbic\_1 | 0.0639 | 0.0000 |  |
| Zooplankton | Sacramento | clad\_1 | ~~ | flow | 0.3619 | 0.0000 |  |
| Zooplankton | Sacramento | clad\_1 | ~~ | turbid | -0.0777 | 0.0000 |  |
| Zooplankton | Sacramento | clad\_1 | ~~ | temp | -0.0825 | 0.0000 |  |
| Zooplankton | Sacramento | clad\_1 | ~~ | pcope\_1 | -0.1996 | 0.0000 |  |
| Zooplankton | Sacramento | clad\_1 | ~~ | mysid\_1 | -0.3593 | 0.0000 |  |
| Zooplankton | Sacramento | clad\_1 | ~~ | estfish\_bsmt\_1 | -0.2134 | 0.0000 |  |
| Zooplankton | Sacramento | amphi\_1 | ~~ | amphi\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | Sacramento | amphi\_1 | ~~ | rotif\_1 | -0.0998 | 0.0000 |  |
| Zooplankton | Sacramento | amphi\_1 | ~~ | corbic\_1 | 0.1414 | 0.0000 |  |
| Zooplankton | Sacramento | amphi\_1 | ~~ | flow | 0.1215 | 0.0000 |  |
| Zooplankton | Sacramento | amphi\_1 | ~~ | turbid | 0.1530 | 0.0000 |  |
| Zooplankton | Sacramento | amphi\_1 | ~~ | temp | -0.0645 | 0.0000 |  |
| Zooplankton | Sacramento | amphi\_1 | ~~ | pcope\_1 | -0.1515 | 0.0000 |  |
| Zooplankton | Sacramento | amphi\_1 | ~~ | mysid\_1 | -0.0314 | 0.0000 |  |
| Zooplankton | Sacramento | amphi\_1 | ~~ | estfish\_bsmt\_1 | 0.0404 | 0.0000 |  |
| Zooplankton | Sacramento | rotif\_1 | ~~ | rotif\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | Sacramento | rotif\_1 | ~~ | corbic\_1 | 0.0891 | 0.0000 |  |
| Zooplankton | Sacramento | rotif\_1 | ~~ | flow | 0.2436 | 0.0000 |  |
| Zooplankton | Sacramento | rotif\_1 | ~~ | turbid | -0.1848 | 0.0000 |  |
| Zooplankton | Sacramento | rotif\_1 | ~~ | temp | -0.1064 | 0.0000 |  |
| Zooplankton | Sacramento | rotif\_1 | ~~ | pcope\_1 | 0.1329 | 0.0000 |  |
| Zooplankton | Sacramento | rotif\_1 | ~~ | mysid\_1 | -0.2124 | 0.0000 |  |
| Zooplankton | Sacramento | rotif\_1 | ~~ | estfish\_bsmt\_1 | -0.1981 | 0.0000 |  |
| Zooplankton | Sacramento | corbic\_1 | ~~ | corbic\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | Sacramento | corbic\_1 | ~~ | flow | 0.0137 | 0.0000 |  |
| Zooplankton | Sacramento | corbic\_1 | ~~ | turbid | -0.0562 | 0.0000 |  |
| Zooplankton | Sacramento | corbic\_1 | ~~ | temp | -0.1736 | 0.0000 |  |
| Zooplankton | Sacramento | corbic\_1 | ~~ | pcope\_1 | 0.0532 | 0.0000 |  |
| Zooplankton | Sacramento | corbic\_1 | ~~ | mysid\_1 | -0.1027 | 0.0000 |  |
| Zooplankton | Sacramento | corbic\_1 | ~~ | estfish\_bsmt\_1 | 0.0570 | 0.0000 |  |
| Zooplankton | Sacramento | flow | ~~ | flow | 1.0000 | 0.0000 |  |
| Zooplankton | Sacramento | flow | ~~ | turbid | 0.0868 | 0.0000 |  |
| Zooplankton | Sacramento | flow | ~~ | temp | -0.2383 | 0.0000 |  |
| Zooplankton | Sacramento | flow | ~~ | pcope\_1 | -0.1934 | 0.0000 |  |
| Zooplankton | Sacramento | flow | ~~ | mysid\_1 | -0.3225 | 0.0000 |  |
| Zooplankton | Sacramento | flow | ~~ | estfish\_bsmt\_1 | -0.3306 | 0.0000 |  |
| Zooplankton | Sacramento | turbid | ~~ | turbid | 1.0000 | 0.0000 |  |
| Zooplankton | Sacramento | turbid | ~~ | temp | 0.0372 | 0.0000 |  |
| Zooplankton | Sacramento | turbid | ~~ | pcope\_1 | -0.2587 | 0.0000 |  |
| Zooplankton | Sacramento | turbid | ~~ | mysid\_1 | 0.2534 | 0.0000 |  |
| Zooplankton | Sacramento | turbid | ~~ | estfish\_bsmt\_1 | 0.1655 | 0.0000 |  |
| Zooplankton | Sacramento | temp | ~~ | temp | 1.0000 | 0.0000 |  |
| Zooplankton | Sacramento | temp | ~~ | pcope\_1 | 0.0725 | 0.0000 |  |
| Zooplankton | Sacramento | temp | ~~ | mysid\_1 | 0.2238 | 0.0000 |  |
| Zooplankton | Sacramento | temp | ~~ | estfish\_bsmt\_1 | 0.1404 | 0.0000 |  |
| Zooplankton | Sacramento | pcope\_1 | ~~ | pcope\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | Sacramento | pcope\_1 | ~~ | mysid\_1 | 0.2210 | 0.0000 |  |
| Zooplankton | Sacramento | pcope\_1 | ~~ | estfish\_bsmt\_1 | 0.1379 | 0.0000 |  |
| Zooplankton | Sacramento | mysid\_1 | ~~ | mysid\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | Sacramento | mysid\_1 | ~~ | estfish\_bsmt\_1 | 0.3664 | 0.0000 |  |
| Zooplankton | Sacramento | estfish\_bsmt\_1 | ~~ | estfish\_bsmt\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | San Joaquin | chla | ~ | chla\_1 | 0.2672 | 0.0637 | 0.0000 |
| Zooplankton | San Joaquin | chla | ~ | hcope\_1 | 0.1126 | 0.0631 | 0.0742 |
| Zooplankton | San Joaquin | chla | ~ | clad\_1 | 0.1581 | 0.0665 | 0.0174 |
| Zooplankton | San Joaquin | chla | ~ | rotif\_1 | -0.0981 | 0.0624 | 0.1158 |
| Zooplankton | San Joaquin | chla | ~ | corbic\_1 | 0.0128 | 0.0626 | 0.8384 |
| Zooplankton | San Joaquin | chla | ~ | flow | -0.0590 | 0.0672 | 0.3802 |
| Zooplankton | San Joaquin | chla | ~ | turbid | 0.0112 | 0.0657 | 0.8651 |
| Zooplankton | San Joaquin | chla | ~ | temp | 0.0805 | 0.0639 | 0.2076 |
| Zooplankton | San Joaquin | hcope | ~ | chla\_1 | 0.1832 | 0.0576 | 0.0015 |
| Zooplankton | San Joaquin | hcope | ~ | hcope\_1 | 0.3517 | 0.0560 | 0.0000 |
| Zooplankton | San Joaquin | hcope | ~ | pcope\_1 | -0.0004 | 0.0599 | 0.9953 |
| Zooplankton | San Joaquin | hcope | ~ | corbic\_1 | 0.1195 | 0.0587 | 0.0416 |
| Zooplankton | San Joaquin | hcope | ~ | flow | -0.1397 | 0.0599 | 0.0196 |
| Zooplankton | San Joaquin | hcope | ~ | turbid | -0.0995 | 0.0600 | 0.0974 |
| Zooplankton | San Joaquin | hcope | ~ | temp | 0.1862 | 0.0583 | 0.0014 |
| Zooplankton | San Joaquin | hcope | ~ | estfish\_bsmt\_1 | -0.1921 | 0.0587 | 0.0011 |
| Zooplankton | San Joaquin | clad | ~ | chla\_1 | 0.1214 | 0.0555 | 0.0288 |
| Zooplankton | San Joaquin | clad | ~ | clad\_1 | 0.5258 | 0.0487 | 0.0000 |
| Zooplankton | San Joaquin | clad | ~ | pcope\_1 | -0.0380 | 0.0541 | 0.4822 |
| Zooplankton | San Joaquin | clad | ~ | flow | 0.1784 | 0.0540 | 0.0010 |
| Zooplankton | San Joaquin | clad | ~ | turbid | -0.0475 | 0.0557 | 0.3937 |
| Zooplankton | San Joaquin | clad | ~ | temp | 0.1086 | 0.0545 | 0.0462 |
| Zooplankton | San Joaquin | clad | ~ | estfish\_bsmt\_1 | -0.0909 | 0.0533 | 0.0880 |
| Zooplankton | San Joaquin | amphi | ~ | chla\_1 | -0.0310 | 0.0661 | 0.6389 |
| Zooplankton | San Joaquin | amphi | ~ | amphi\_1 | 0.2139 | 0.0647 | 0.0009 |
| Zooplankton | San Joaquin | amphi | ~ | flow | -0.0053 | 0.0669 | 0.9372 |
| Zooplankton | San Joaquin | amphi | ~ | turbid | 0.1600 | 0.0673 | 0.0174 |
| Zooplankton | San Joaquin | amphi | ~ | temp | 0.0851 | 0.0669 | 0.2036 |
| Zooplankton | San Joaquin | amphi | ~ | estfish\_bsmt\_1 | 0.0488 | 0.0681 | 0.4736 |
| Zooplankton | San Joaquin | rotif | ~ | chla\_1 | 0.0341 | 0.0649 | 0.5991 |
| Zooplankton | San Joaquin | rotif | ~ | rotif\_1 | 0.1144 | 0.0632 | 0.0704 |
| Zooplankton | San Joaquin | rotif | ~ | flow | 0.3039 | 0.0616 | 0.0000 |
| Zooplankton | San Joaquin | rotif | ~ | turbid | -0.0721 | 0.0653 | 0.2694 |
| Zooplankton | San Joaquin | rotif | ~ | temp | 0.0015 | 0.0661 | 0.9821 |
| Zooplankton | San Joaquin | rotif | ~ | estfish\_bsmt\_1 | 0.1726 | 0.0649 | 0.0078 |
| Zooplankton | San Joaquin | pcope | ~ | chla\_1 | 0.2025 | 0.0604 | 0.0008 |
| Zooplankton | San Joaquin | pcope | ~ | hcope\_1 | -0.0537 | 0.0594 | 0.3659 |
| Zooplankton | San Joaquin | pcope | ~ | clad\_1 | 0.0816 | 0.0624 | 0.1910 |
| Zooplankton | San Joaquin | pcope | ~ | pcope\_1 | 0.4463 | 0.0532 | 0.0000 |
| Zooplankton | San Joaquin | pcope | ~ | corbic\_1 | -0.0524 | 0.0580 | 0.3657 |
| Zooplankton | San Joaquin | pcope | ~ | flow | 0.0259 | 0.0624 | 0.6781 |
| Zooplankton | San Joaquin | pcope | ~ | turbid | -0.0739 | 0.0618 | 0.2314 |
| Zooplankton | San Joaquin | pcope | ~ | temp | 0.0111 | 0.0605 | 0.8546 |
| Zooplankton | San Joaquin | pcope | ~ | estfish\_bsmt\_1 | -0.0463 | 0.0612 | 0.4494 |
| Zooplankton | San Joaquin | chla | ~~ | chla | 0.8404 | 0.0441 | 0.0000 |
| Zooplankton | San Joaquin | hcope | ~~ | hcope | 0.6963 | 0.0487 | 0.0000 |
| Zooplankton | San Joaquin | clad | ~~ | clad | 0.5961 | 0.0464 | 0.0000 |
| Zooplankton | San Joaquin | amphi | ~~ | amphi | 0.9043 | 0.0375 | 0.0000 |
| Zooplankton | San Joaquin | rotif | ~~ | rotif | 0.8660 | 0.0421 | 0.0000 |
| Zooplankton | San Joaquin | pcope | ~~ | pcope | 0.7176 | 0.0478 | 0.0000 |
| Zooplankton | San Joaquin | chla | ~~ | hcope | 0.1084 | 0.0682 | 0.1120 |
| Zooplankton | San Joaquin | chla | ~~ | clad | 0.2741 | 0.0638 | 0.0000 |
| Zooplankton | San Joaquin | chla | ~~ | amphi | -0.0085 | 0.0690 | 0.9018 |
| Zooplankton | San Joaquin | chla | ~~ | rotif | 0.1316 | 0.0678 | 0.0523 |
| Zooplankton | San Joaquin | chla | ~~ | pcope | -0.0534 | 0.0688 | 0.4379 |
| Zooplankton | San Joaquin | hcope | ~~ | clad | 0.0735 | 0.0686 | 0.2839 |
| Zooplankton | San Joaquin | hcope | ~~ | amphi | 0.0292 | 0.0689 | 0.6724 |
| Zooplankton | San Joaquin | hcope | ~~ | rotif | 0.0194 | 0.0690 | 0.7784 |
| Zooplankton | San Joaquin | hcope | ~~ | pcope | 0.0380 | 0.0689 | 0.5812 |
| Zooplankton | San Joaquin | clad | ~~ | amphi | -0.1240 | 0.0679 | 0.0681 |
| Zooplankton | San Joaquin | clad | ~~ | rotif | 0.0443 | 0.0689 | 0.5203 |
| Zooplankton | San Joaquin | clad | ~~ | pcope | 0.1267 | 0.0679 | 0.0620 |
| Zooplankton | San Joaquin | amphi | ~~ | rotif | 0.0641 | 0.0687 | 0.3512 |
| Zooplankton | San Joaquin | amphi | ~~ | pcope | 0.0349 | 0.0689 | 0.6124 |
| Zooplankton | San Joaquin | rotif | ~~ | pcope | 0.2498 | 0.0647 | 0.0001 |
| Zooplankton | San Joaquin | chla\_1 | ~~ | chla\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | San Joaquin | chla\_1 | ~~ | hcope\_1 | 0.1451 | 0.0000 |  |
| Zooplankton | San Joaquin | chla\_1 | ~~ | clad\_1 | 0.2464 | 0.0000 |  |
| Zooplankton | San Joaquin | chla\_1 | ~~ | rotif\_1 | 0.0859 | 0.0000 |  |
| Zooplankton | San Joaquin | chla\_1 | ~~ | corbic\_1 | -0.0408 | 0.0000 |  |
| Zooplankton | San Joaquin | chla\_1 | ~~ | flow | -0.0416 | 0.0000 |  |
| Zooplankton | San Joaquin | chla\_1 | ~~ | turbid | 0.0692 | 0.0000 |  |
| Zooplankton | San Joaquin | chla\_1 | ~~ | temp | 0.0770 | 0.0000 |  |
| Zooplankton | San Joaquin | chla\_1 | ~~ | pcope\_1 | -0.0251 | 0.0000 |  |
| Zooplankton | San Joaquin | chla\_1 | ~~ | estfish\_bsmt\_1 | 0.0864 | 0.0000 |  |
| Zooplankton | San Joaquin | chla\_1 | ~~ | amphi\_1 | 0.0104 | 0.0000 |  |
| Zooplankton | San Joaquin | hcope\_1 | ~~ | hcope\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | San Joaquin | hcope\_1 | ~~ | clad\_1 | 0.0937 | 0.0000 |  |
| Zooplankton | San Joaquin | hcope\_1 | ~~ | rotif\_1 | -0.1050 | 0.0000 |  |
| Zooplankton | San Joaquin | hcope\_1 | ~~ | corbic\_1 | 0.0913 | 0.0000 |  |
| Zooplankton | San Joaquin | hcope\_1 | ~~ | flow | -0.2094 | 0.0000 |  |
| Zooplankton | San Joaquin | hcope\_1 | ~~ | turbid | -0.0037 | 0.0000 |  |
| Zooplankton | San Joaquin | hcope\_1 | ~~ | temp | -0.0186 | 0.0000 |  |
| Zooplankton | San Joaquin | hcope\_1 | ~~ | pcope\_1 | 0.1186 | 0.0000 |  |
| Zooplankton | San Joaquin | hcope\_1 | ~~ | estfish\_bsmt\_1 | -0.0519 | 0.0000 |  |
| Zooplankton | San Joaquin | hcope\_1 | ~~ | amphi\_1 | 0.0180 | 0.0000 |  |
| Zooplankton | San Joaquin | clad\_1 | ~~ | clad\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | San Joaquin | clad\_1 | ~~ | rotif\_1 | 0.1367 | 0.0000 |  |
| Zooplankton | San Joaquin | clad\_1 | ~~ | corbic\_1 | 0.0664 | 0.0000 |  |
| Zooplankton | San Joaquin | clad\_1 | ~~ | flow | 0.1692 | 0.0000 |  |
| Zooplankton | San Joaquin | clad\_1 | ~~ | turbid | -0.1476 | 0.0000 |  |
| Zooplankton | San Joaquin | clad\_1 | ~~ | temp | 0.0048 | 0.0000 |  |
| Zooplankton | San Joaquin | clad\_1 | ~~ | pcope\_1 | 0.2513 | 0.0000 |  |
| Zooplankton | San Joaquin | clad\_1 | ~~ | estfish\_bsmt\_1 | -0.0298 | 0.0000 |  |
| Zooplankton | San Joaquin | clad\_1 | ~~ | amphi\_1 | -0.2041 | 0.0000 |  |
| Zooplankton | San Joaquin | rotif\_1 | ~~ | rotif\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | San Joaquin | rotif\_1 | ~~ | corbic\_1 | 0.0933 | 0.0000 |  |
| Zooplankton | San Joaquin | rotif\_1 | ~~ | flow | 0.1607 | 0.0000 |  |
| Zooplankton | San Joaquin | rotif\_1 | ~~ | turbid | -0.0195 | 0.0000 |  |
| Zooplankton | San Joaquin | rotif\_1 | ~~ | temp | 0.1038 | 0.0000 |  |
| Zooplankton | San Joaquin | rotif\_1 | ~~ | pcope\_1 | 0.2522 | 0.0000 |  |
| Zooplankton | San Joaquin | rotif\_1 | ~~ | estfish\_bsmt\_1 | -0.0309 | 0.0000 |  |
| Zooplankton | San Joaquin | rotif\_1 | ~~ | amphi\_1 | 0.0162 | 0.0000 |  |
| Zooplankton | San Joaquin | corbic\_1 | ~~ | corbic\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | San Joaquin | corbic\_1 | ~~ | flow | 0.1218 | 0.0000 |  |
| Zooplankton | San Joaquin | corbic\_1 | ~~ | turbid | 0.1504 | 0.0000 |  |
| Zooplankton | San Joaquin | corbic\_1 | ~~ | temp | -0.0930 | 0.0000 |  |
| Zooplankton | San Joaquin | corbic\_1 | ~~ | pcope\_1 | 0.0398 | 0.0000 |  |
| Zooplankton | San Joaquin | corbic\_1 | ~~ | estfish\_bsmt\_1 | -0.0287 | 0.0000 |  |
| Zooplankton | San Joaquin | corbic\_1 | ~~ | amphi\_1 | 0.0550 | 0.0000 |  |
| Zooplankton | San Joaquin | flow | ~~ | flow | 1.0000 | 0.0000 |  |
| Zooplankton | San Joaquin | flow | ~~ | turbid | 0.0945 | 0.0000 |  |
| Zooplankton | San Joaquin | flow | ~~ | temp | -0.0543 | 0.0000 |  |
| Zooplankton | San Joaquin | flow | ~~ | pcope\_1 | 0.0592 | 0.0000 |  |
| Zooplankton | San Joaquin | flow | ~~ | estfish\_bsmt\_1 | -0.1034 | 0.0000 |  |
| Zooplankton | San Joaquin | flow | ~~ | amphi\_1 | -0.0928 | 0.0000 |  |
| Zooplankton | San Joaquin | turbid | ~~ | turbid | 1.0000 | 0.0000 |  |
| Zooplankton | San Joaquin | turbid | ~~ | temp | -0.0363 | 0.0000 |  |
| Zooplankton | San Joaquin | turbid | ~~ | pcope\_1 | -0.1606 | 0.0000 |  |
| Zooplankton | San Joaquin | turbid | ~~ | estfish\_bsmt\_1 | 0.1398 | 0.0000 |  |
| Zooplankton | San Joaquin | turbid | ~~ | amphi\_1 | 0.2021 | 0.0000 |  |
| Zooplankton | San Joaquin | temp | ~~ | temp | 1.0000 | 0.0000 |  |
| Zooplankton | San Joaquin | temp | ~~ | pcope\_1 | 0.1389 | 0.0000 |  |
| Zooplankton | San Joaquin | temp | ~~ | estfish\_bsmt\_1 | 0.1919 | 0.0000 |  |
| Zooplankton | San Joaquin | temp | ~~ | amphi\_1 | -0.0479 | 0.0000 |  |
| Zooplankton | San Joaquin | pcope\_1 | ~~ | pcope\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | San Joaquin | pcope\_1 | ~~ | estfish\_bsmt\_1 | 0.0890 | 0.0000 |  |
| Zooplankton | San Joaquin | pcope\_1 | ~~ | amphi\_1 | -0.0226 | 0.0000 |  |
| Zooplankton | San Joaquin | estfish\_bsmt\_1 | ~~ | estfish\_bsmt\_1 | 1.0000 | 0.0000 |  |
| Zooplankton | San Joaquin | estfish\_bsmt\_1 | ~~ | amphi\_1 | 0.0123 | 0.0000 |  |
| Zooplankton | San Joaquin | amphi\_1 | ~~ | amphi\_1 | 1.0000 | 0.0000 |  |