

Supplementary Tables

Supplementary Table 1. The details for the different fish species that were sampled in the current study (sampling season, average weight, and number of sampled fish).

Fish species & size	n	Sampling season	Average weight (gr)
Hybrid tilapia (small)	5	winter, spring	50
Hybrid tilapia (big)	10	summer, winter, spring	446
Flathead grey mullet (small)	9	winter, spring	40
Flathead grey mullet (big)	8	winter, spring	446
Hybrid striped bass (small)	4	winter, summer	46
Hybrid striped bass (big)	13	summer, winter, spring	603
Common carp (small)	3	summer	35
Common carp (big)	10	spring, summer	558
European bass (big)	10	autumn, winter, summer	162
Red drum (big)	9	autumn, winter, summer	487

Supplementary Table 2. Fish feed values for each fish species. Fish feed manufactured by Zemach Extrufeed Aqua (<https://zemach-extrufeed.co.il>) and/or Raanan Fish Feed (<https://raanan-fishfeed.com>).

Fish Feed values	European bass (%)	Hybrid striped bass (%)	Red drum (%)	Common carp (%)	Hybrid tilapia (%)	Flathead grey mullet*
Crude protein	46.0	40.0	45.0	25.0 - 35.0	30.0 - 35.0	NA**
Crude fat	18.0	9.0	12.0	7.0 - 8.0	4.0 - 6.0	NA
Crude fiber	3.5	5.0	3.5	4.5 - 5.0	5.0 - 5.5	NA
Ash	10.0	8.5	9.0	8.5 - 9.0	7.0 - 9.0	NA
Moisture	10.0	9.5	9.5	9.5 - 10.0	9.5 - 10.0	NA
Calcium	2.0	2.2	2.0	1.80	1.2 - 1.7	NA
Phosphorus	1.0 - 1.5	1.0	1.0	0.8 - 1.3	1 - 1.2	NA

*Flathead grey mullet do not have special feed, they are only raised in polyculture and eat the feed of the primary fish in the pond/reservoir (usually hybrid tilapia, common carp or hybrid striped bass).

**NA, not available

Supplementary Table 3. Pairwise ADONIS test with Benjamini-Hochberg correction for false discovery rate test based on fish species and size.

Species	df	F	R ²	p	adjusted p (BH*)
Fish size (small fish <100g vs. big fish >100g)					
Hybrid striped bass	1	1.91	0.113	0.045	0.058
Common carp	1	5.10	0.317	0.023	0.033
Flathead grey mullet	1	1.07	0.067	0.374	0.382
Hybrid tilapia	1	8.20	0.387	0.001	0.002
Fish species (small fish <100g)					
Hybrid striped bass vs. Common carp	1	1.36	0.254	0.266	0.279
Hybrid striped bass vs. Flathead grey mullet	1	2.79	0.202	0.006	0.001
Hybrid striped bass vs. Hybrid tilapia	1	6.82	0.494	0.005	0.008
Common carp vs. Flathead grey mullet	1	1.52	0.144	0.074	0.088
Common carp vs. Hybrid tilapia	1	4.72	0.486	0.042	0.055
Flathead grey mullet vs. Hybrid tilapia	1	4.98	0.293	0.003	0.005
Fish size (small fish <100g vs. big fish >100g)					
Hybrid striped bass vs. Common carp	1	4.42	0.167	0.001	0.002
Hybrid striped bass vs. European bass	1	1.99	0.086	0.025	0.035
Hybrid striped bass vs. Flathead grey mullet	1	2.34	0.110	0.001	0.002
Hybrid striped bass vs. Red drum	1	3.12	0.135	0.003	0.005
Hybrid striped bass vs. Hybrid tilapia	1	4.38	0.173	0.002	0.004
Common carp vs. European bass	1	4.99	0.208	0.001	0.002
Common carp vs. Flathead grey mullet	1	9.58	0.360	0.001	0.002
Common carp vs. Red drum	1	6.27	0.258	0.001	0.002
Common carp vs. Hybrid tilapia	1	10.08	0.346	0.001	0.002
European bass vs. Flathead grey mullet	1	2.80	0.149	0.001	0.002
European bass vs. Red drum	1	1.97	0.104	0.035	0.048
European bass vs. Hybrid tilapia	1	3.54	0.164	0.002	0.004
Flathead grey mullet vs. Red drum	1	3.99	0.210	0.001	0.002
Flathead grey mullet vs. Hybrid tilapia	1	4.21	0.208	0.001	0.002
Red drum vs. Hybrid tilapia	1	1.65	0.088	0.099	0.111

*BH, Benjamini-Hochberg correction

Supplementary Table 4. (Presented in an Excel file) **ASV taxonomic classification and abundances within each sample of each fish species.** The Table includes ASVs with the abundances above 100 per ASV.

BSC, hybrid striped bass; CC, common carp; LC, European bass; MC, flathead grey mullet; RDC, red drum; TC, hybrid tilapia.