

Supplementary figures and tables for:

**An exploration of the impact of phylogenetic tree structure
on NTI and β NTI estimates of community assembly**

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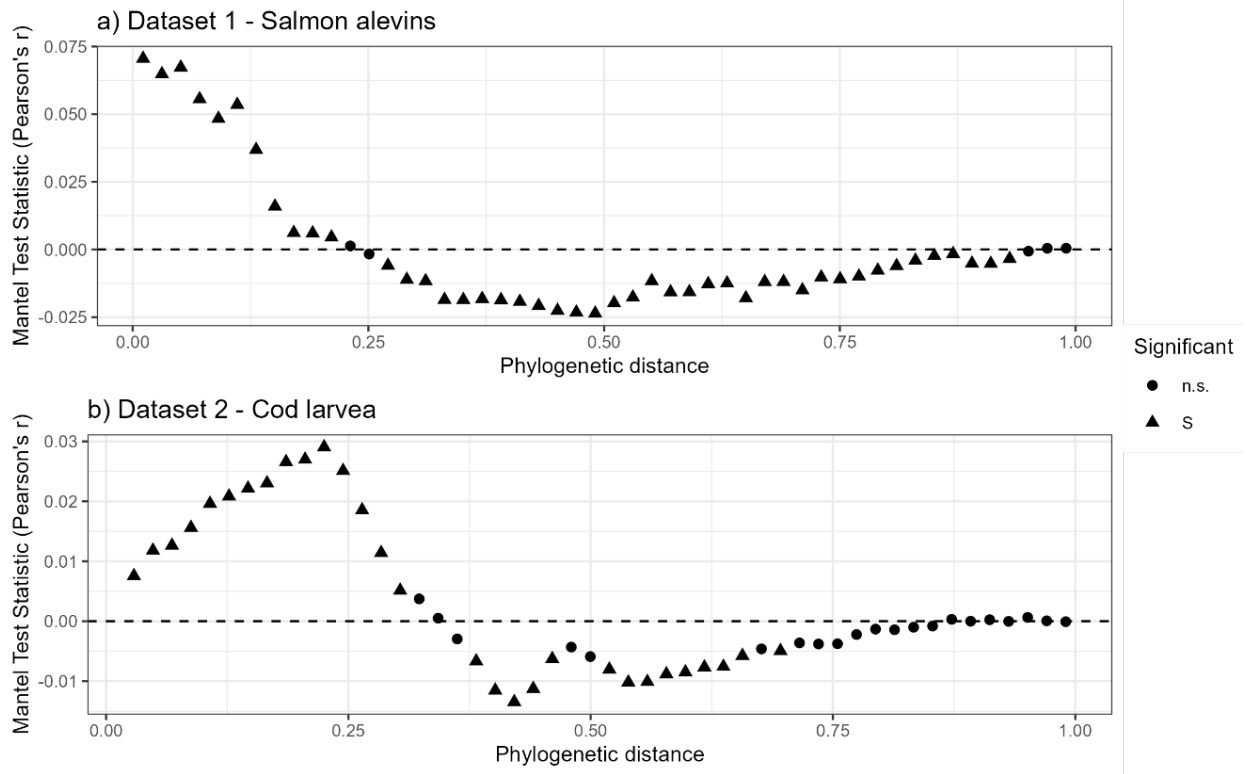
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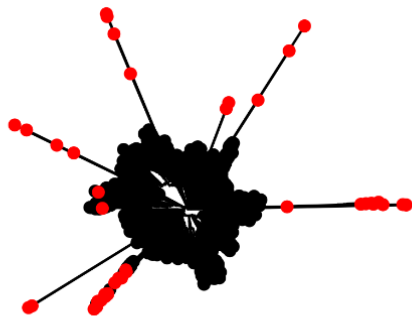
Supplementary Figure 1: Phylogenetic Mantel correlogram indicating significant phylogenetic signals across short phylogenetic distances in a) Dataset 1 and b) Dataset 2. Significance indicates whether between ASV/OTU niche is correlated to differences between ASV/OTU phylogenetic differences across a phylogenetic distance (s=significant, $p < 0.05$, n.s. = not significant). The Mantel correlogram indicates that ASVs/OTUs inhabiting the same niches have close phylogenetic distances, and thus there is a phylogenetic signal in the dataset.

Supplementary Table 1: The taxonomic identity of the top BLAST matches with highest similarity to the outlier sequences in Dataset 1. A maximum of five matches and only unique taxonomies are presented for each ASV.

ASV	Taxonomy
Zotu348	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii; Salmoniformes; Salmonidae; Salmoninae; Salmo
Zotu348	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii; Salmoniformes; Salmonidae; Coregoninae; Coregonus
Zotu530	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii; Salmoniformes; Salmonidae; Salmoninae; Salmo
Zotu592	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii; Salmoniformes; Salmonidae; Coregoninae; Coregonus
Zotu592	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii; Salmoniformes; Salmonidae; Salmoninae; Salmo
Zotu614	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii; Salmoniformes; Salmonidae; Salmoninae; Salmo
Zotu614	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii; Salmoniformes; Salmonidae; Coregoninae; Coregonus
Zotu729	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii; Salmoniformes; Salmonidae; Salmoninae; Salmo
Zotu729	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Neoteleostei; Acanthomorpha; Eupercaria; Perciformes; Notothenioidei; Channichthyidae; Pseudochaenichthys
Zotu729	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Neoteleostei; Acanthomorpha; Eupercaria; Perciformes; Notothenioidei; Bovichtidae; Cottoperca
Zotu729	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii; Argentinidae; Argentina
Zotu910	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii; Salmoniformes; Salmonidae; Salmoninae; Salmo
Zotu910	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii; Salmoniformes; Salmonidae; Coregoninae; Coregonus
Zotu910	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii; Salmoniformes; Salmonidae; Salmoninae; Salvelinus
Zotu969	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii; Salmoniformes; Salmonidae; Salmoninae; Salmo
Zotu969	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii; Salmoniformes; Salmonidae; Coregoninae; Coregonus
Zotu1008	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii; Salmoniformes; Salmonidae; Salmoninae; Salmo
Zotu1008	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii; Salmoniformes; Salmonidae; Coregoninae; Coregonus
Zotu1015	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii; Salmoniformes; Salmonidae; Coregoninae; Coregonus
Zotu1015	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii; Salmoniformes; Salmonidae; Salmoninae; Salmo
Zotu1020	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii; Salmoniformes; Salmonidae; Salmoninae; Salmo
Zotu1096	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii; Salmoniformes; Salmonidae; Salmoninae; Salmo
Zotu1177	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii; Salmoniformes; Salmonidae; Salmoninae; Salmo
Zotu1177	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii; Salmoniformes; Salmonidae; Coregoninae; Coregonus
Zotu1266	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii; Salmoniformes; Salmonidae; Salmoninae; Salmo
Zotu1266	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii; Salmoniformes; Salmonidae; Salmoninae; Oncorhynchus
Zotu1334	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii; Salmoniformes; Salmonidae; Salmoninae; Salmo
Zotu1349	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii; Salmoniformes; Salmonidae; Salmoninae; Salmo
Zotu1349	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii; Salmoniformes; Salmonidae; Salmoninae; Oncorhynchus

Zotu2448	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii ; Salmoniformes; Salmonidae; Salmoninae; Oncorhynchus
Zotu2765	Bacteria; Pseudomonadota; Gammaproteobacteria; Pseudomonadales; Pseudomonadaceae; Pseudomonas - Assumed to be wrongly classified due to highly diverging phylogenetic distance
Zotu2769	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii ; Salmoniformes; Salmonidae; Salmoninae; Salmo
Zotu2769	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii ; Salmoniformes; Salmonidae; Coregoninae; Coregonus
Zotu2821	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii ; Salmoniformes; Salmonidae; Salmoninae; Salmo
Zotu2821	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii ; Salmoniformes; Salmonidae; Coregoninae; Coregonus
Zotu2935	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii ; Salmoniformes; Salmonidae; Salmoninae; Salmo
Zotu3167	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii ; Salmoniformes; Salmonidae; Salmoninae; Salmo
Zotu3250	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii ; Salmoniformes; Salmonidae; Salmoninae; Salmo
Zotu3250	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Protacanthopterygii ; Salmoniformes; Salmonidae; Coregoninae; Coregonus
Zotu3285	Bacteria; Pseudomonadota; Betaproteobacteria; Burkholderiales; Oxalobacteraceae; Undibacterium - Assumed to be wrongly classified due to highly diverging phylogenetic distance
Zotu3285	Bacteria; environmental samples

a) All sequences 3336 OTUs
42 outliers



b) Without outliers 3294 OTUs



Supplementary Figure 2: Phylogenetic trees of Dataset 2 (cod larvae) with a) all OTUs (3336 OTUs) and b) without outlier sequences (3294 OTUs).

Supplementary Table 2: The taxonomic identity of the top BLAST matches with highest similarity to the outlier sequences in Dataset 2. A maximum of five matches and only unique taxonomies are presented for each ASV.

OTU	Taxonomy
otu228	Eukaryota; Fungi; Dikarya; Ascomycota; Pezizomycotina; Dothideomycetes; Pleosporomycetidae; Pleosporales; Delitschiaceae; Delitschia
otu228	Eukaryota; Fungi; Dikarya; Ascomycota; Pezizomycotina; Dothideomycetes; Dothideomycetes incertae sedis; Zopfiaceae; Zopfia
otu228	Eukaryota; Fungi; Dikarya; Ascomycota; Pezizomycotina; Dothideomycetes; Pleosporomycetidae; Mytilinidiales; Mytiliniaceae; Lophium
otu473	Eukaryota; Sar; Stramenopiles; Bigyra; Opalozoa; Bicosoecida; Caecitellus
otu1022	no BLAST matches
otu1245	no BLAST matches
otu1264	Eukaryota; Fungi; Dikarya; Ascomycota; Pezizomycotina; Sordariomycetes; Hypocreomycetidae; Hypocreales; Nectriaceae; Fusarium; Fusarium oxysporum species complex
otu1264	Eukaryota; Fungi; Dikarya; Ascomycota; Pezizomycotina; Leotiomyces; Helotiales; Dermateaceae; Phlyctema
otu1264	Eukaryota; Fungi; Dikarya; Ascomycota; Pezizomycotina; Leotiomyces; Erysiphales; Erysiphaceae; Podosphaera
otu1264	Eukaryota; Fungi; Dikarya; Ascomycota; Pezizomycotina; Sordariomycetes; Hypocreomycetidae; Hypocreales; Sarocladiaceae; Sarocladium
otu1264	Eukaryota; Fungi; Dikarya; Ascomycota; Pezizomycotina; Sordariomycetes; Hypocreomycetidae; Hypocreales; Nectriaceae; Fusarium
otu1421	Eukaryota; Sar; Stramenopiles; Bigyra; Opalozoa; Bicosoecida; Caecitellus
otu1639	Eukaryota; Sar; Stramenopiles; Bigyra; Opalozoa; Bicosoecida; Bicosoecida incertae sedis; Bilabrum
otu1639	Eukaryota; environmental samples
otu1837	Eukaryota; Sar; Stramenopiles; Bigyra; Opalozoa; Bicosoecida; Caecitellus
otu1837	Eukaryota; environmental samples
otu1887	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Neoteleostei; Acanthomorphata; Zeiogadaria; Gadariae; Gadiformes; Gadoidei; Gadidae; Gadus
otu1945	Eukaryota; environmental samples
otu1945	Eukaryota; Sar; Stramenopiles; Bigyra; Opalozoa; Nanomonadea; Incisomonas
otu2101	Eukaryota; Fungi; Dikarya; Ascomycota; Pezizomycotina; Dothideomycetes; Pleosporomycetidae; Pleosporales; Pleosporineae; Pleosporaceae; Alternaria; Alternaria sect. Infectoriae
otu2101	Eukaryota; Fungi; Dikarya; Ascomycota; Pezizomycotina; Dothideomycetes; Pleosporomycetidae; Pleosporales; Pleosporineae; Pleosporaceae; Alternaria; Alternaria sect. Porri
otu2285	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Neoteleostei; Acanthomorphata; Zeiogadaria; Gadariae; Gadiformes; Gadoidei; Gadidae; Gadus
otu2312	Eukaryota; Fungi
otu2312	Eukaryota; Fungi; Dikarya; Ascomycota; Pezizomycotina; Dothideomycetes; Pleosporomycetidae; Pleosporales; Pleosporineae; Didymellaceae; Phoma
otu2312	Eukaryota; Fungi; Dikarya; Ascomycota; Pezizomycotina; Dothideomycetes; Pleosporomycetidae; Pleosporales; Pleosporineae; Didymellaceae; Ascochyta
otu2365	Eukaryota; Sar; Stramenopiles; environmental samples
otu2365	Eukaryota
otu2365	Eukaryota; Sar; Stramenopiles; Bigyra; Labyrinthulomycetes; Thraustochytrida; Thraustochytriaceae
otu2365	Eukaryota; environmental samples
otu2487	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Neoteleostei; Acanthomorphata; Zeiogadaria; Gadariae; Gadiformes; Gadoidei; Gadidae; Gadus
otu2487	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Chondrostei; Acipenseriformes; Acipenseridae; Acipenser

otu2541	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Neoteleostei; Acanthomorphata; Zeiogadaria; Gadariae; Gadiformes; Gadoidei; Gadidae; Gadus
otu2704	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Neoteleostei; Acanthomorphata; Zeiogadaria; Gadariae; Gadiformes; Gadoidei; Gadidae; Gadus
otu3087	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Neoteleostei; Acanthomorphata; Zeiogadaria; Gadariae; Gadiformes; Gadoidei; Gadidae; Gadus
otu3120	Bacteria; environmental samples
otu3120	unclassified sequences; environmental samples
otu3120	Archaea; environmental samples
otu3159	Eukaryota; Fungi; Dikarya; Ascomycota; Pezizomycotina; Sordariomycetes; Hypocreomycetidae; Hypocreales; Nectriaceae; Fusarium; Fusarium solani species complex
otu3159	Eukaryota; Fungi; Dikarya; Ascomycota; Pezizomycotina; Dothideomycetes; Pleosporomycetidae; Pleosporales; Pleosporineae; Didymellaceae; Phoma
otu3159	Eukaryota; Fungi; Dikarya; Ascomycota; Pezizomycotina; Dothideomycetes; Pleosporomycetidae; Pleosporales; Pleosporineae; Didymellaceae; Didymella
otu3159	Eukaryota; Fungi
otu3227	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Neoteleostei; Acanthomorphata; Holocentriformes; Holocentridae; Myripristis
otu3412	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Neoteleostei; Acanthomorphata; Zeiogadaria; Gadariae; Gadiformes; Gadoidei; Gadidae; Gadus
otu3803	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Neoteleostei; Acanthomorphata; Zeiogadaria; Gadariae; Gadiformes; Gadoidei; Gadidae; Gadus
otu3806	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Neoteleostei; Acanthomorphata; Zeiogadaria; Gadariae; Gadiformes; Gadoidei; Gadidae; Gadus
otu3806	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Neoteleostei; Acanthomorphata; Ovalentaria; Pomacentridae; Acanthochromis
otu3806	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Neoteleostei; Acanthomorphata; Ovalentaria; Blenniiformes; Blenniidae; Salariae; Salarias
otu4365	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Neoteleostei; Acanthomorphata; Zeiogadaria; Gadariae; Gadiformes; Gadoidei; Gadidae; Gadus
otu4369	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Neoteleostei; Acanthomorphata; Zeiogadaria; Gadariae; Gadiformes; Gadoidei; Gadidae; Gadus
otu5643	no BLAST matches
otu7224	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Neoteleostei; Acanthomorphata; Zeiogadaria; Gadariae; Gadiformes; Gadoidei; Gadidae; Gadus
otu567	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Neoteleostei; Acanthomorphata; Zeiogadaria; Gadariae; Gadiformes; Gadoidei; Gadidae; Gadus
otu1841	unclassified sequences; environmental samples
otu1841	Archaea; Euryarchaeota; environmental samples
otu1841	Archaea; environmental samples
otu2033	Eukaryota; Viridiplantae; Chlorophyta; Mamiellophyceae; Mamiellales; Bathycoccaceae; Bathycoccus
otu2033	Bacteria; environmental samples
otu2033	Bacteria; Pseudomonadota; Gammaproteobacteria; Pseudomonadales; Pseudomonadaceae; Pseudomonas; environmental samples
otu2033	Bacteria; Pseudomonadota; Alphaproteobacteria; Rickettsiales; Anaplasmataceae; Anaplasma
otu2568	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Neoteleostei; Acanthomorphata; Zeiogadaria; Gadariae; Gadiformes; Gadoidei; Gadidae; Gadus
otu3349	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Neoteleostei; Acanthomorphata; Zeiogadaria; Gadariae; Gadiformes; Gadoidei; Gadidae; Gadus
otu4489	no BLAST matches_check up
otu4831	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Neoteleostei; Acanthomorphata; Zeiogadaria; Gadariae; Gadiformes; Gadoidei; Gadidae; Gadus
otu4831	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Neoteleostei; Acanthomorphata; Eupercaria; Spariformes; Sparidae; Acanthopagrus

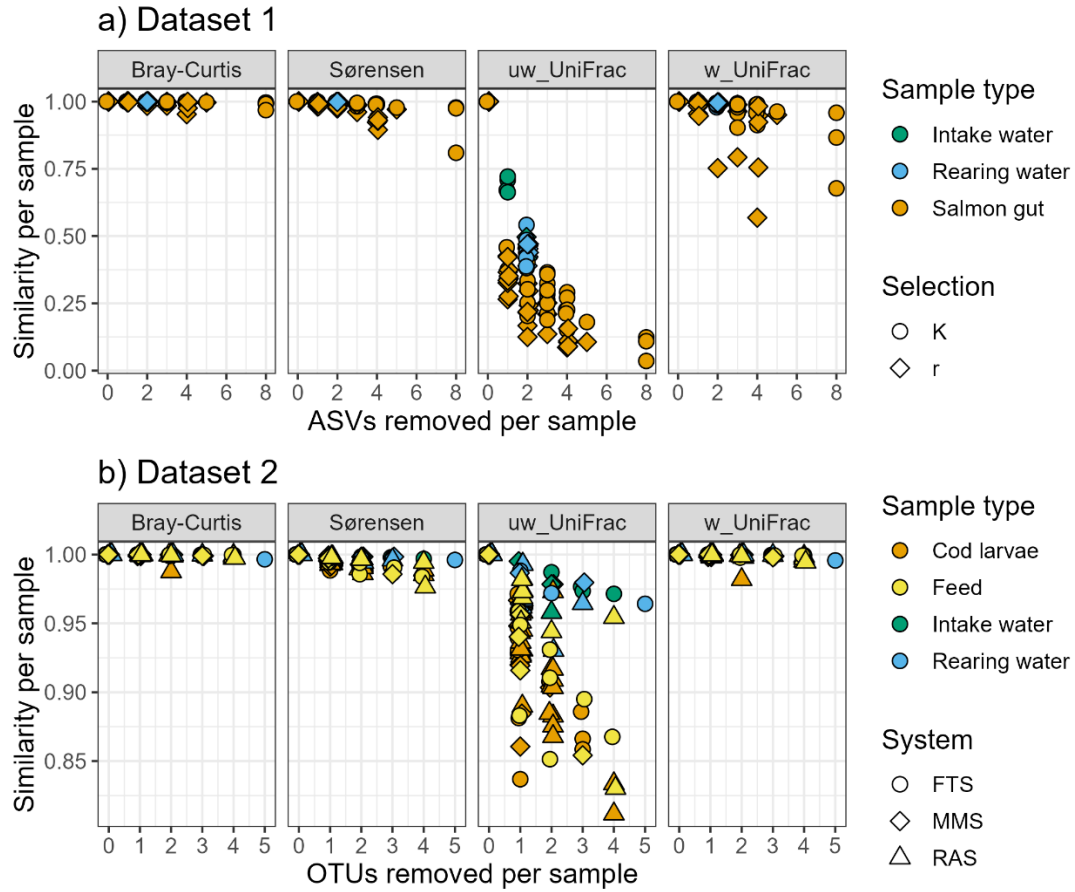
otu1295	no BLAST matches
otu3413	no BLAST matches
otu4047	no BLAST matches
otu365	Eukaryota; Discoba; Jakobida; Histonina; Jakobidae; Jakoba
otu365	Bacteria; environmental samples
otu2254	Eukaryota; Discoba; Jakobida; Histonina; Seculamonas
otu3237	Eukaryota; Amoebozoa; Discosea; Longamoebia; Centramoebida; Acanthamoebidae; Acanthamoeba
otu6048	Bacteria; environmental samples
otu6048	Eukaryota; Rhodophyta; Florideophyceae; Nemaliophycidae; Batrachospermales; Lemnaceae; Paralemanea
otu6048	unclassified sequences; environmental samples

Supplementary Table 3: Community characteristics in Dataset 1 and 2. The outlier sequences identified did not make up much of the population pool. The outliers did not contribute significantly to the population pool on a sample basis and generally contributed little to the overall relative abundance in each sample.

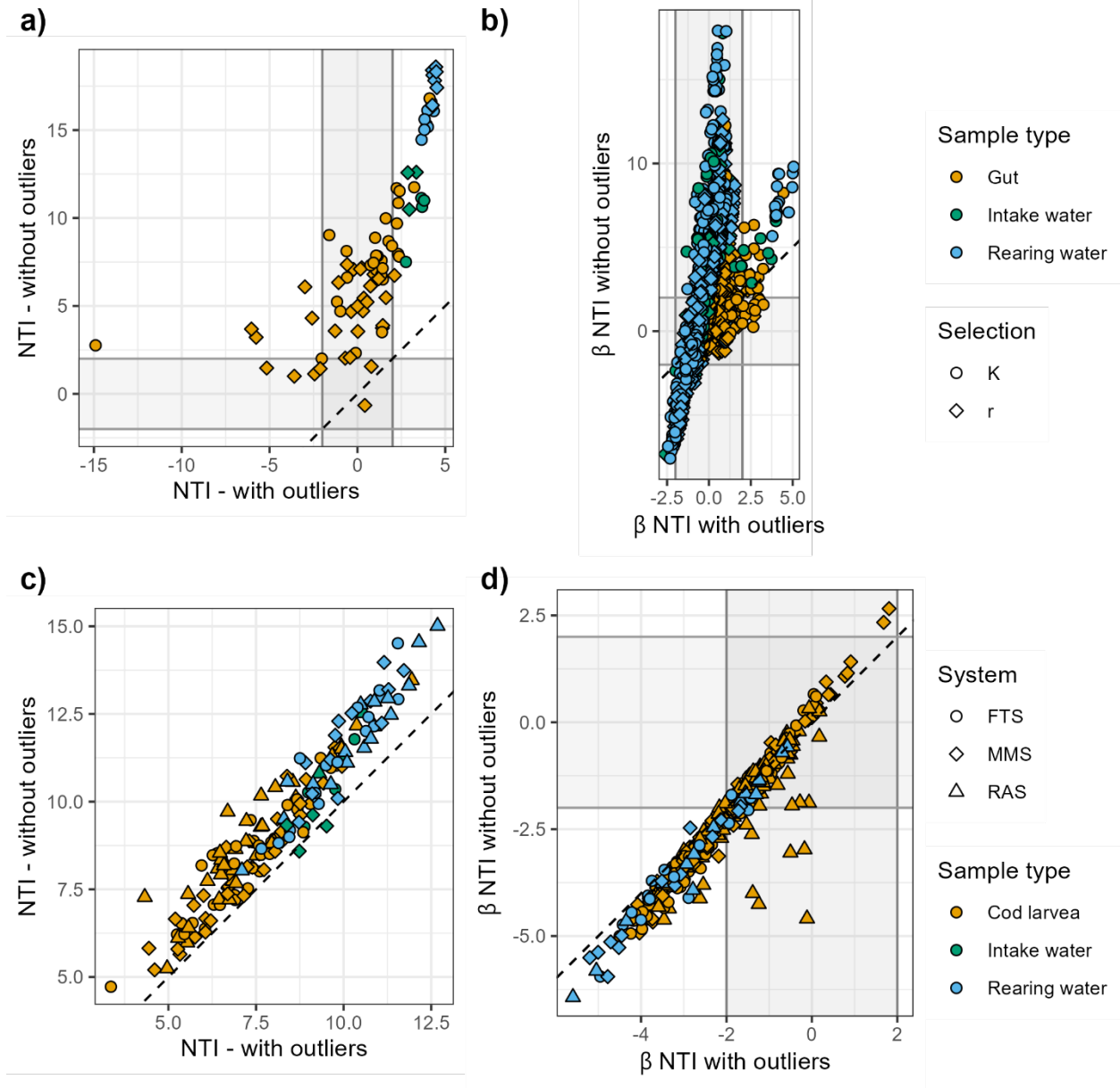
	n outliers	% of population pool	Max ASV sample loss	Relative abundance per sample ($\pm$ SD)	Max sample abundance
Dataset 1	37	1.2%	8	Water: 0.1% ($\pm$ 0.06%) Gut: 0.7% ($\pm$ 1.5%)	9.0%
Dataset 2	42	1.3%	5	Water&feed: 0.04% ($\pm$ 0.1%) Larvea:0.06% ($\pm$ 0.24%)	2.4%

Supplementary Table 4: The average $\pm$ SD similarity using different similarity indices comparing each samples composition between the full and outlier-free dataset.

	BC	Sørensen	u UniFrac	w UniFrac	n uw UniFrac < 0.95
Dataset 1	1.00 $\pm$ 0.01	0.99 $\pm$ 0.03	0.37 $\pm$ 0.22	0.97 $\pm$ 0.07	82 of 88
Dataset 2	1.00 $\pm$ 0.001	1.00 $\pm$ 0.004	0.97 $\pm$ 0.044	1.00 $\pm$ 0.001	51 of 197



Supplementary Figure 3: The Bray-Curtis, Sørensen, unweighted UniFrac and weighted UniFrac similarity for each sample between the datasets with and without the outliers in a) Dataset 1 and b) Dataset 2.



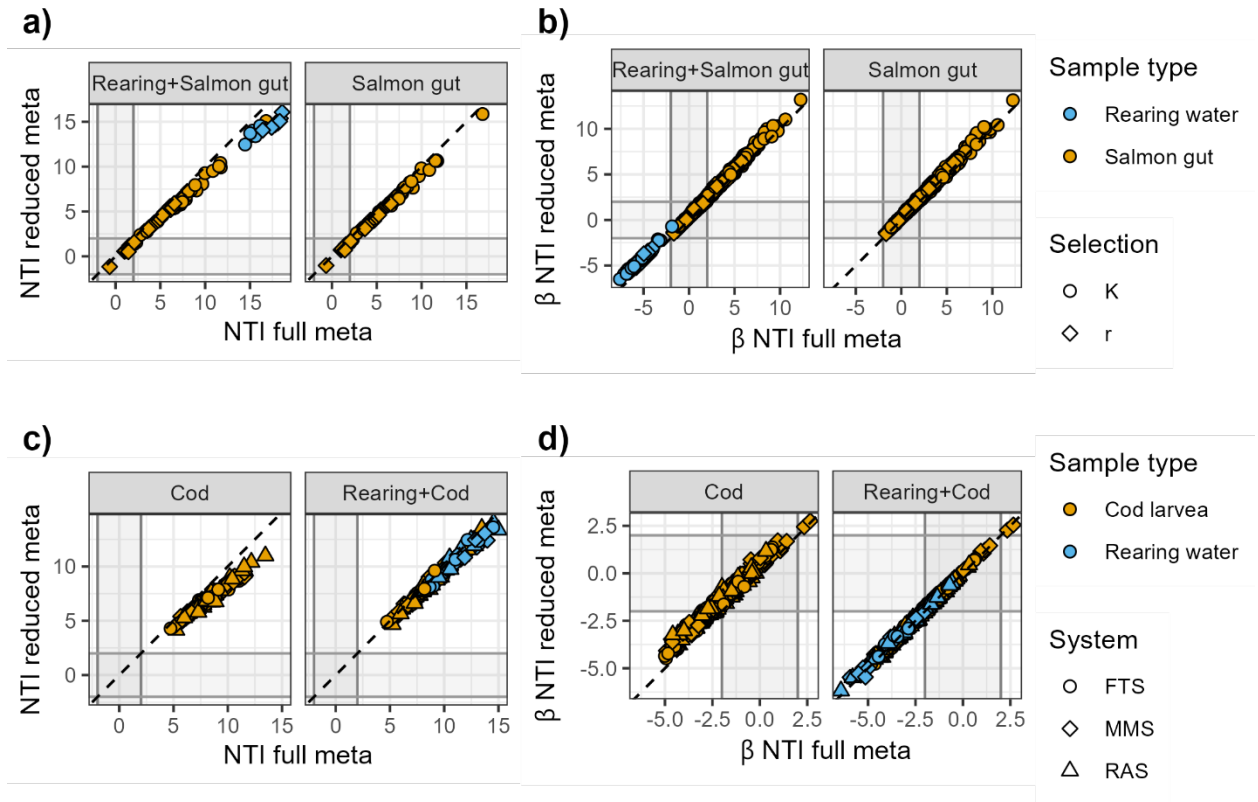
Supplementary Figure 4: Differences in estimated NTI and β NTI from the data with and without outliers. Difference in NTI for each sample in a) Dataset 1 (salmon alevin) and c) Dataset 2 (cod larvae). Differences in estimated β NTI between pairs of samples in b) Dataset 1 and d) Dataset 2. Only sample comparisons within the same sample type and sampling water selection regime are shown. The dashed line shows the 1:1 relationship. Values within the grey area are within two standard deviations of the null model.

Supplementary Table 5: Overview of how the removing the outlier sequences affected the number of ASVs or OTUs in the dataset and the estimated NTI and β NTI (mean $\pm$ standard deviation) for the gut and water samples.

		Full dataset	Outlier-free dataset
Dataset 1	n ASVs	3186	3149
	NTI Salmon gut samples	-0.04 $\pm$ 2.74	6.07 $\pm$ 3.12
	NTI rearing water	4.14 $\pm$ 0.27	16.61 $\pm$ 1.34
	NTI intake water	3.31 $\pm$ 0.52	11.54 $\pm$ 2.52
	β NTI Salmon gut samples	0.15 $\pm$ 0.48	2.10 $\pm$ 1.93
	β NTI rearing water samples	-1.92 $\pm$ 0.53	-5.37 $\pm$ 1.08
	β NTI intake water samples	-1.10 $\pm$ 0.68	-1.16 $\pm$ 2.52
Dataset 2	n OTUs	3336	3294
	NTI Cod larvae samples	7.23 $\pm$ 1.49	8.43 $\pm$ 1.70
	NTI rearing water samples	10.04 $\pm$ 1.26	11.59 $\pm$ 1.66
	NTI intake water samples	9.39 $\pm$ 0.92	10.29 $\pm$ 1.33
	β NTI Cod larvae samples	-2.00 $\pm$ 1.07	-2.24 $\pm$ 1.28
	β NTI rearing water samples	-3.08 $\pm$ 1.35	-3.45 $\pm$ 1.52

Supplementary Table 6: Overview of how the metacommunity richness affected the number of ASVs or OTUs in the metacommunity and the estimated NTI and β NTI (mean $\pm$ standard deviation) for the gut and rearing water samples

	Metacommunity	All samples	Rearing+Gut	Gut
Dataset 1	n ASVs	3149	2509	2106
	NTI Salmon gut samples	6.07 $\pm$ 3.11	5.16 $\pm$ 2.84	5.49 $\pm$ 2.97
	NTI rearing water	16.61 $\pm$ 1.34	14.27 $\pm$ 0.86	-
	β NTI Salmon gut samples	2.10 $\pm$ 1.93	2.55 $\pm$ 2.02	2.41 $\pm$ 1.99
	β NTI rearing samples	-5.37 $\pm$ 1.08	-4.41 $\pm$ 1.05	-
Dataset 2	n OTUs	3294	3064	1883
	NTI Cod larvae samples	8.43 $\pm$ 1.70	8.15 $\pm$ 1.63	7.13 $\pm$ 1.31
	NTI rearing water	11.59 $\pm$ 1.66	11.08 $\pm$ 1.54	-
	β NTI Cod larvae gut samples	-2.24 $\pm$ 1.28	-2.15 $\pm$ 1.28	-1.61 $\pm$ 1.21
	β NTI rearing samples	-3.45 $\pm$ 1.52	-3.31 $\pm$ 1.46	-



Supplementary Figure 5: The NTI and β NTI estimated in the full and reduced metacommunities. Comparison of NTI in the reduced and full metacommunity in a) Dataset 1 and c) Dataset 2. Comparison of β NTI in the reduced and full metacommunity in b) Dataset 1 and d) Dataset 2. The dashed line indicates a 1:1 ratio. Values within the grey areas are within 2 standard deviations of the null model. Only sample comparisons within the same sample type, sampling day and water selection regime/system are shown.