



# Aquarium Microbiome Analysis Report

## About this report

This report describes the results from DNA analysis of the following sample:

|             |                     |
|-------------|---------------------|
| Sample ID   | 1000085             |
| Sample Name | Ralph Schweigert    |
| Tank Name   | 12g Cadlights Nano  |
| Sample Date | 2019-12-02 07:50 AM |
| Report Date | 01/20/2020 15:49    |

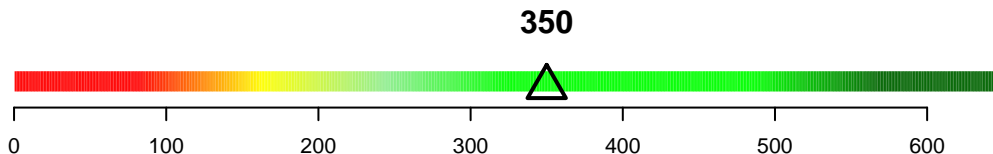
These data provide detailed information on the community of microbes living in your aquarium. Each type of microbe in your sample was identified by comparing DNA sequences from your sample with a database of DNA sequences from known types. The relative abundance of each sequence can be used to compare the relative abundance of each type across samples.



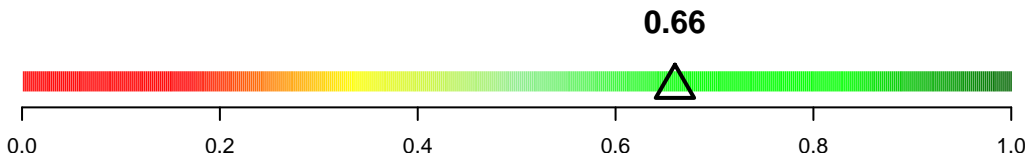
# Aquarium Microbiome Analysis Report


## Part 1: Diversity and balance

### Number of Microbial Types




### Diversity Score (Percentile)




 Your tank's microbiome is among the least diverse of tanks we tested. (<25<sup>th</sup> percentile)

*If you want to increase diversity, consider adding live rock or other natural sources of live microbes.*

 Your sample was less diverse than at least half the tanks we tested. (25<sup>th</sup> to 50<sup>th</sup> percentile)

*Continue to monitor, or increase diversity by adding live microbes from natural sources.*

 Your sample was more diverse than most of the tanks we tested. (>50<sup>th</sup> percentile)

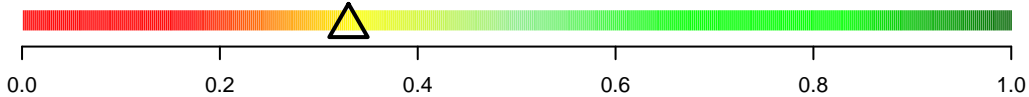
*Celebrate your success! The diversity of your aquarium's microbiome is higher than the average reef tank.*






# Aquarium Microbiome Analysis Report

## Balance Score (Correlation with Typical Abundance)

0.33

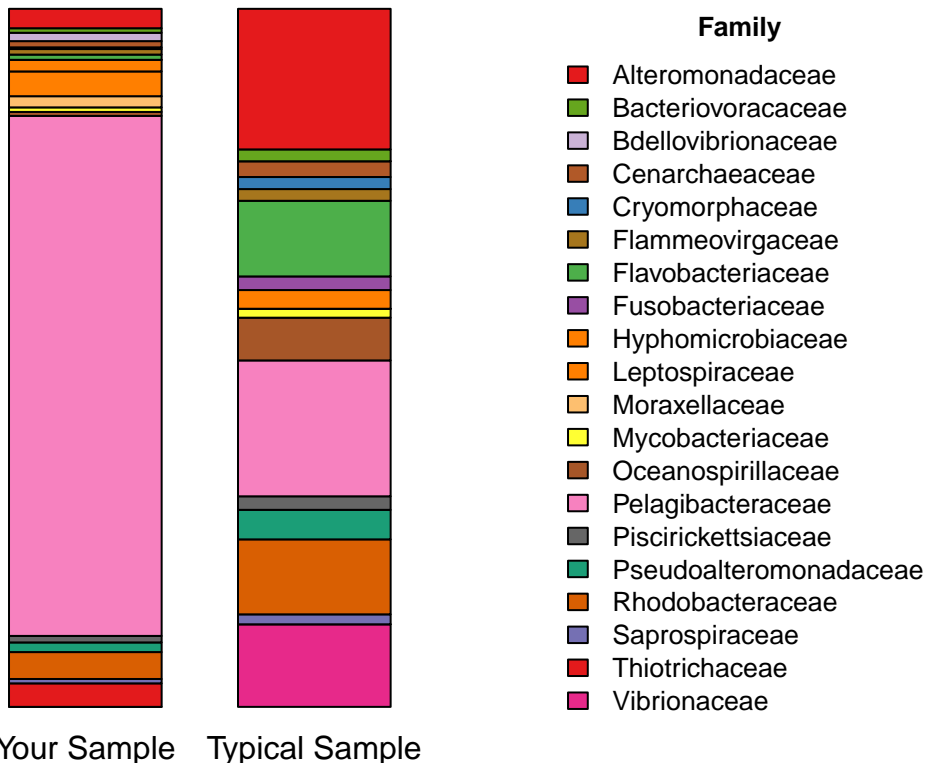


|   |  |  |
|---|--|--|
|  <p>The balance between microbial types in your sample is very different than most reef tanks we tested. (score &lt; 0.25)</p> <p><i>Considering adjusting your tank's microbiome by changing the conditions, e.g., nutrient types / levels.</i></p> |  <p>The balance of microbial types in your sample shows both similarities and differences with the typical reef tank (scores 0.25 to 0.5)</p> <p><i>Continue to monitor, or adjust by changing conditions in your tank.</i></p> |  <p>The balance of microbial types in your tank is very similar to a typical reef tank. (scores above 0.5)</p> <p><i>Enjoy your healthy aquarium! Your tank's ecosystem has achieved a balance similar to that of established reef tanks.</i></p> |
|---|--|--|



# Aquarium Microbiome Analysis Report

## Part 2: Abundance of each family in your sample



Bars indicate the relative abundance of all microbial families accounting for at least 1% of the community either in your sample or the typical reef tank.



# Aquarium Microbiome Analysis Report

## Part 3: Microbial groups of interest

### *Ammonia-oxidizing microbes*

| Group                              | Your.Frequency | Typical.Range    |
|------------------------------------|----------------|------------------|
| Ammonia-oxidizing community, total | 0.02444        | 0.00233 – 0.0536 |
| Nitrosococcus                      | 0              | 0–0.00131        |
| Nitrosomonadaceae                  | 0.00122        | 0–0.00144        |
| Nitrososphaeraceae                 | 0.00026        | 0–0              |
| Cenarchaeaceae                     | 0.02297        | 0.00226–0.04798  |

Typical range describes the 10th to 90th percentiles.

- above 50th percentile
- between 10th and 50th percentile
- below 10th percentile



# Aquarium Microbiome Analysis Report

## *Nitrite-oxidizing groups*

| Group                              | Your.Frequency | Typical.Range |
|------------------------------------|----------------|---------------|
| Nitrite-oxidizing community, total | 0.00179        | 0 – 0.0056    |
| Nitrobacter                        | 0              | 0–0           |
| Nitrococcus                        | 0              | 0–0           |
| Nitrotoga                          | 0              | 0–0           |
| Nitrospinaceae                     | 0              | 0–0           |
| Nitrospiraceae                     | 0.00179        | 0–0.0049      |
| Nitrolancea                        | 0              | 0–0           |

Typical range describes the 10th to 90th percentiles.

- above 50th percentile
- between 10th and 50th percentile
- below 10th percentile



# Aquarium Microbiome Analysis Report

## *Cyanobacteria, by family*

| Group                | Your.Frequency | Typical.Range |
|----------------------|----------------|---------------|
| Cyanobacteria, total | 0              | 0 – 0.0056    |
| Acaryochloridaceae   | 0              | 0–8e–04       |
| Gloeobacteraceae     | 0              | 0–0           |
| Phormidiaceae        | 0              | 0–0           |
| Pseudanabaenaceae    | 0              | 0–2e–04       |
| Spirulinaceae        | 0              | 0–0           |
| Synechococcaceae     | 0              | 0–0           |
| Xenococcaceae        | 0              | 0–7e–04       |

Typical range describes the 10th to 90th percentiles.

- below 50th percentile
- between 50th and 90th percentile
- above 90th percentile



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## *Fish pathogens*

| Group                       | Your.Frequency | Typical.Range |
|-----------------------------|----------------|---------------|
| Fish pathogens, total       | 0              | 0 – 0.0013    |
| Eubacterium tarantellae     | 0              | 0–0           |
| Lactococcus garvieae        | 0              | 0–0           |
| Enterococcus seriolicida    | 0              | 0–0           |
| Streptococcus parauberis    | 0              | 0–0           |
| Streptococcus iniae         | 0              | 0–0           |
| Mycobacterium chelonae      | 0              | 0–0           |
| Mycobacterium fortuitum,    | 0              | 0–0           |
| Mycobacterium marinum       | 0              | 0–0           |
| Mycobacterium neoaurum      | 0              | 0–0           |
| Nocardia asteroides         | 0              | 0–0           |
| Nocardia salmonicida        | 0              | 0–0           |
| Nocardia seriolae           | 0              | 0–0           |
| Renibacterium salmoninarum  | 0              | 0–0           |
| Aeromonas jandaei           | 0              | 0–0           |
| Aeromonas salmonicida       | 0              | 0–0           |
| Serratia liquefaciens       | 0              | 0–0           |
| Chryseobacterium balustinum | 0              | 0–0           |

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DNA analysis conducted by AquaBiomics LLC.

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# Aquarium Microbiome Analysis Report

## *Fish pathogens (continued)*

| Group                         | Your.Frequency | Typical.Range |
|-------------------------------|----------------|---------------|
| Chryseobacterium scophthalmum | 0              | 0–0           |
| Tenacibaculum maritimus       | 0              | 0–0           |
| Tenacibaculum ovolyticus      | 0              | 0–0           |
| Pasteurella skyensis          | 0              | 0–0           |
| Pseudomonas anguilliseptica   | 0              | 0–0           |
| Moritella marina              | 0              | 0–0           |
| Moritella viscosa             | 0              | 0–0           |
| Photobacterium damsela        | 0              | 0–0.0013      |
| Shewanella putrefaciens       | 0              | 0–0           |
| Vibrio alginolyticus          | 0              | 0–0           |
| Vibrio cholerae               | 0              | 0–0           |
| Vibrio fischeri               | 0              | 0–0           |
| Vibrio furnissii              | 0              | 0–0           |
| Vibrio harveyi                | 0              | 0–0           |
| Vibrio carchariae             | 0              | 0–0           |
| Vibrio trachuri               | 0              | 0–0           |
| Vibrio ichthyenteri           | 0              | 0–0           |
| Vibrio logei                  | 0              | 0–0           |

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## *Fish pathogens (continued)*

| Group                    | Your.Frequency | Typical.Range |
|--------------------------|----------------|---------------|
| Vibrio ordalii           | 0              | 0–0           |
| Vibrio pelagius          | 0              | 0–0           |
| Vibrio salmonicida       | 0              | 0–0           |
| Vibrio splendidus        | 0              | 0–0           |
| Halomonas cupida         | 0              | 0–0           |
| Piscirickettsia salmonis | 0              | 0–0           |

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## ***Coral pathogens***

| Group                   | Your.Frequency | Typical.Range |
|-------------------------|----------------|---------------|
| Coral pathogens, total  | 0              | 0 – 0         |
| Vibrio shiloi           | 0              | 0–0           |
| Vibrio coralliilyticus  | 0              | 0–0           |
| Vibrio harveyi          | 0              | 0–0           |
| Aurantimonas coralicida | 0              | 0–0           |
| Vibrio rotiferianus     | 0              | 0–0           |
| Vibrio alginolyticus    | 0              | 0–0           |
| Vibrio proteolyticus    | 0              | 0–0           |
| Vibrio charcharvina     | 0              | 0–0           |
| Serratia marscens       | 0              | 0–0           |
| Aquarickettsia rohweri  | 0              | 0–0           |

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