

Module 3: Project 2 by Team 5

Charting the distributed nitrogen cycle

Karl Abuan

May Ho

Jonah Lin

Leilynaz Malekafzali

Tiffany Yang

Abdur Rahman M. A. Basher

April 05, 2018

Abstract

This is the abstract. It consists of two paragraphs.

Contents

1	Introduction	2
2	Materials and Experimental Configuration	2
2.1	Experimental Protocols	2
2.2	Dataset	2
2.3	Data Preporocessing	2
3	Results	3
3.1	Analysis of the DNA abundance of norB with depth	3
3.2	Analysis of similarities between RNA and DNA abundance information of norB with depths	3
3.3	Reconstructing the associated taxa with norB and analyze variances of DNA and RNA based on depths	5
3.4	Analysis of the abundance of norB in relation to nitrogen species in Saanich	6
4	Discussion	7
5	References	7

1 Introduction

2 Materials and Experimental Configuration

2.1 Experimental Protocols

To understand the correlation of microbial diversity and oxygen concentration across samples, we report four experimentally designed test protocols:

P1. Analysis of the DNA abundance of norB with depth.

P2. Analysis of similarities between RNA and DNA abundance information of norB with depths.

P3. Reconstructing the associated taxa with norB and analyze variances of DNA and RNA based on depths.

P4. Analysis of the abundance of norB in relation to nitrogen species in Saanich.

2.2 Dataset

2.3 Data Preporocessing

Manipulate the data into a single data frame

3 Results

3.1 Analysis of the DNA abundance of norB with depth

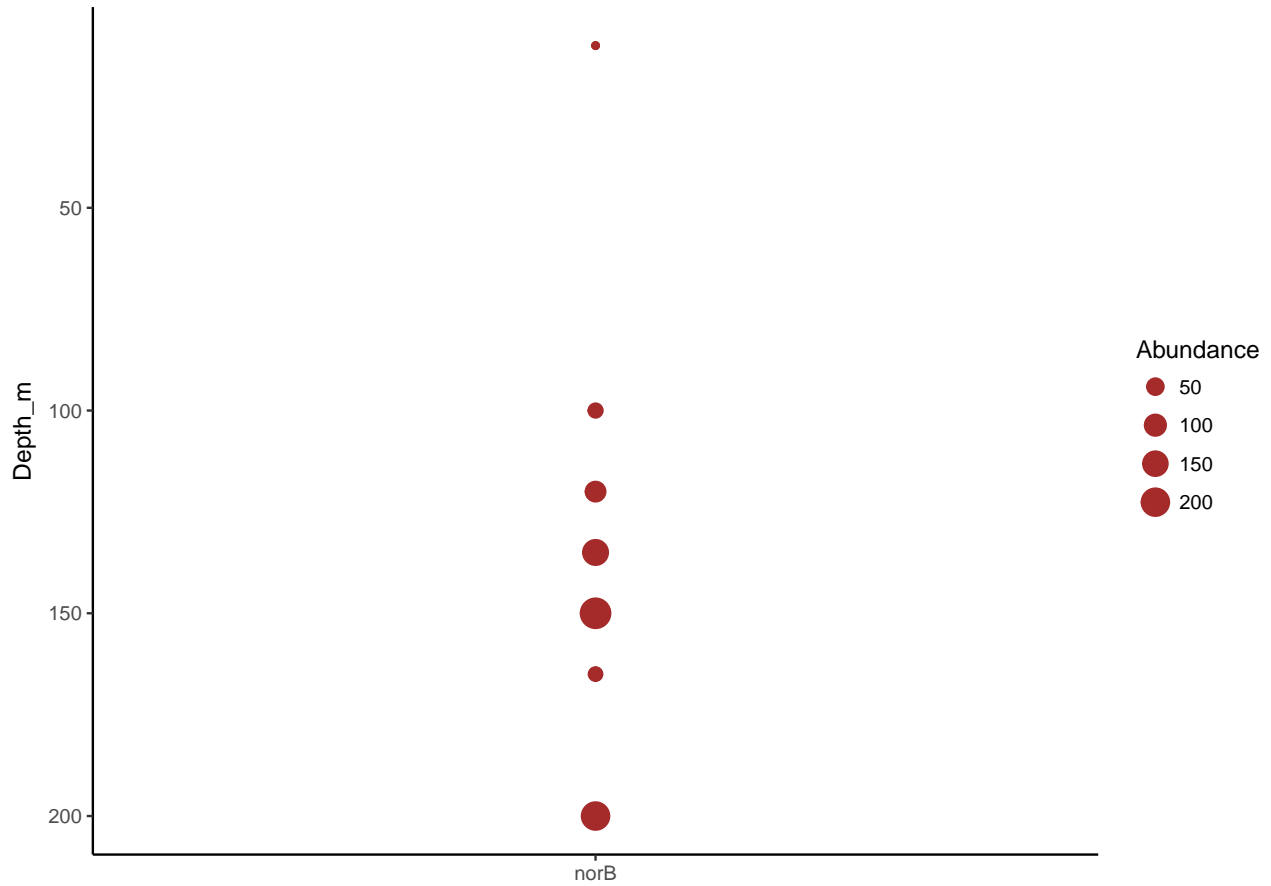


Figure 1: Abundance of the norB gene (DNA) at different depths

3.2 Analysis of similarities between RNA and DNA abundance information of norB with depths

The total abundances computed from DNA and RNA data is 2178.801308 and 2713.3296034, respectively; however, only 26.9102904% and 13.0887227% have known taxa for both DNA and RNA.

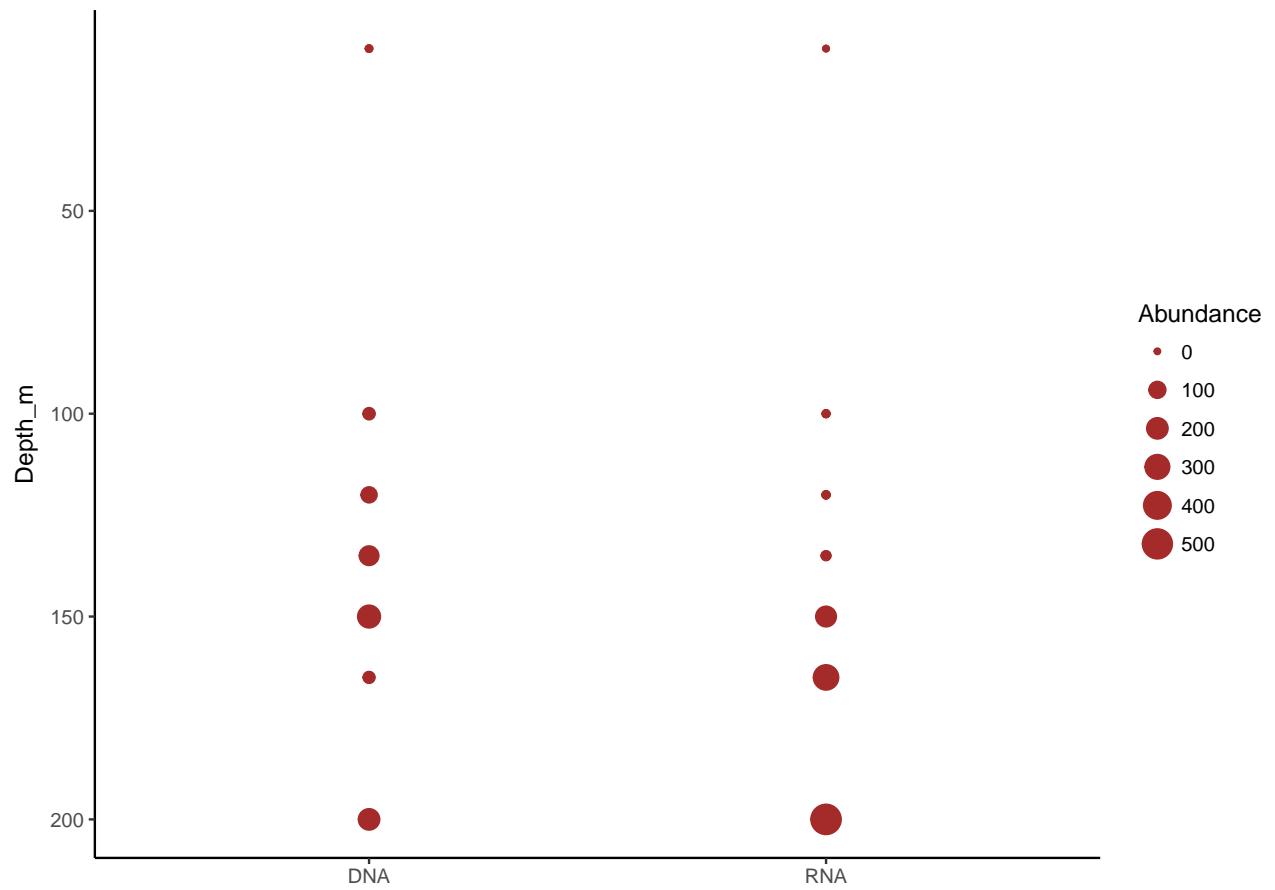


Figure 2: Abundance of the norB gene (DNA vs. RNA) at different depths

3.3 Reconstructing the associated taxa with norB and analyze variances of DNA and RNA based on depths

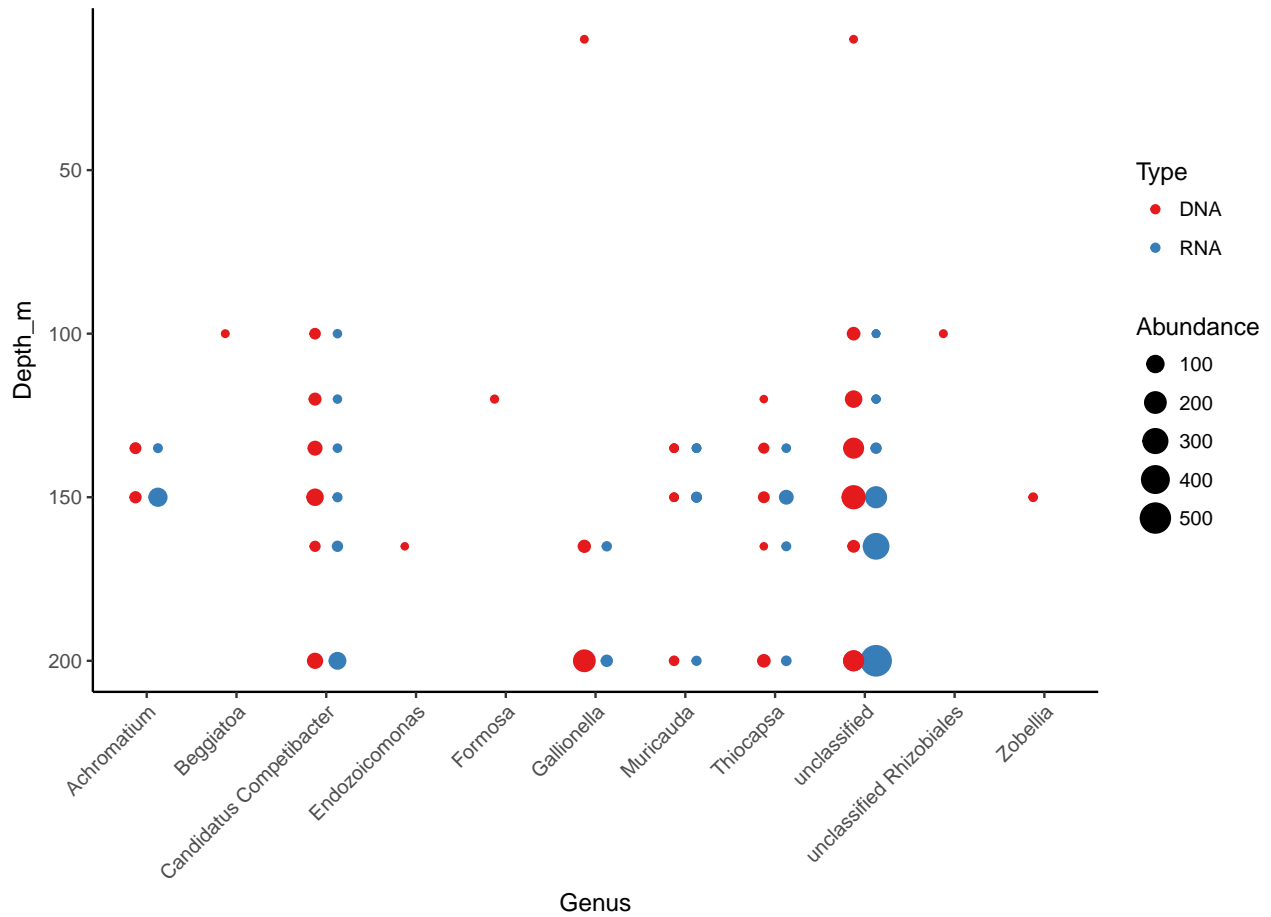


Figure 3: Abundance of genera with norB (DNA vs. RNA) at different depths

Another way to represent the same figure above:

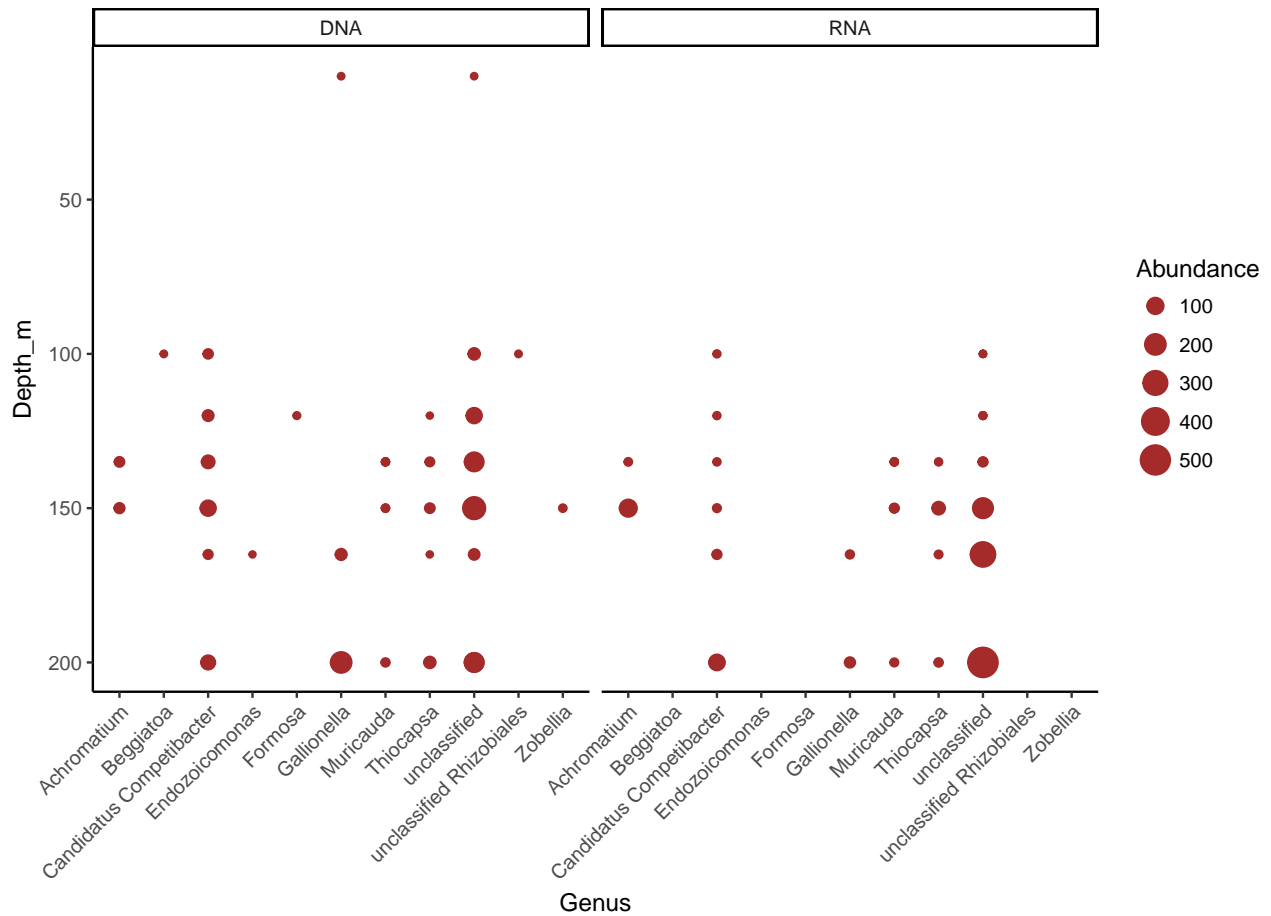


Figure 3a: Abundance of genera with *norB* (DNA vs. RNA) at different depths

3.4 Analysis of the abundance of *norB* in relation to nitrogen species in Saanich

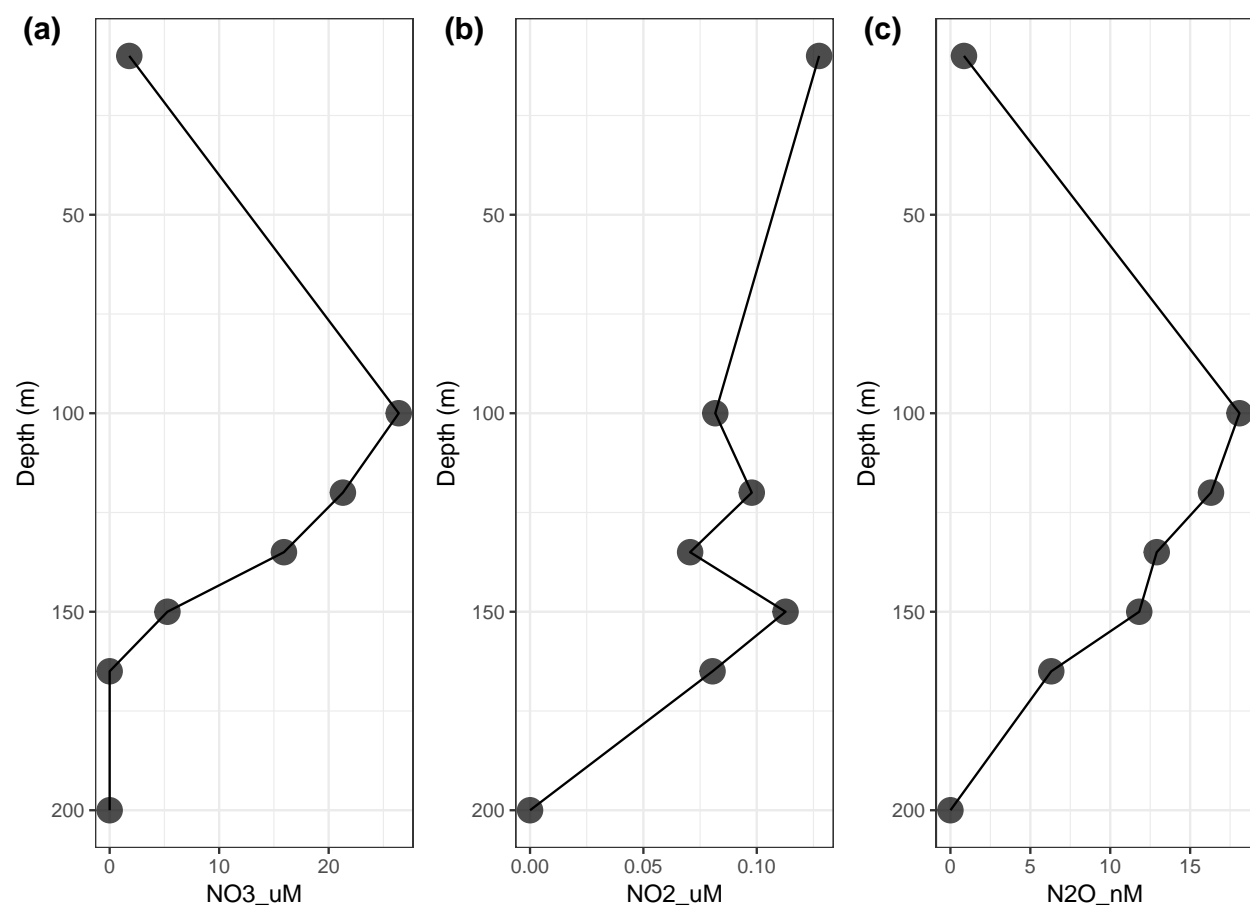


Figure 4: Abundance of norB in relation to nitrogen species across depths

4 Discussion

5 References