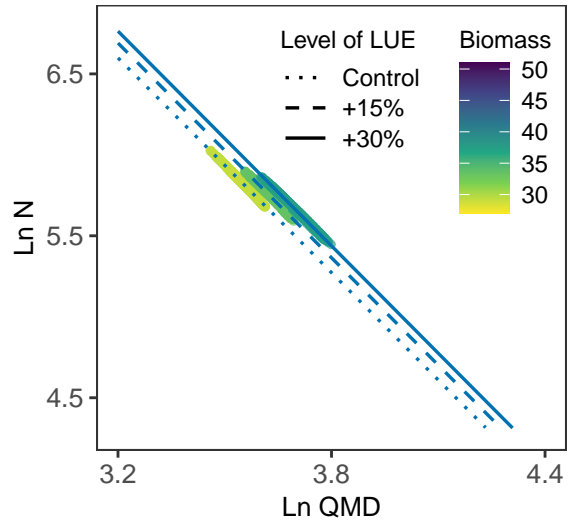
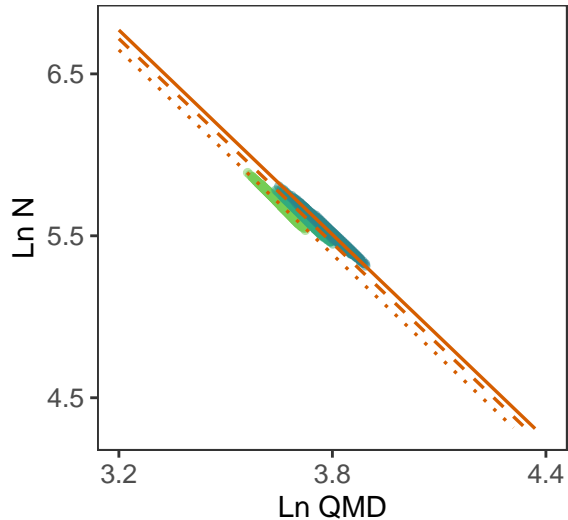


a)

STL changes for r_1 

b)

STL changes for r_2 

c)

STL changes for r_3 