How Does Vegetation Vary Along An Agriculturally Impacted Stream

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Introduction

What drives the variation of vegetation along an agricultural stream?

Vegetation varies along these streams due to many factors. These include grazing, precipitation, light availability, and competition. Vegetation is more likely to grow in places with higher total nitrogen (TN), resulting in higher dissolved organic carbon (DOC) concentrations

Figure 1: Sites surveyed along Marsh Creek
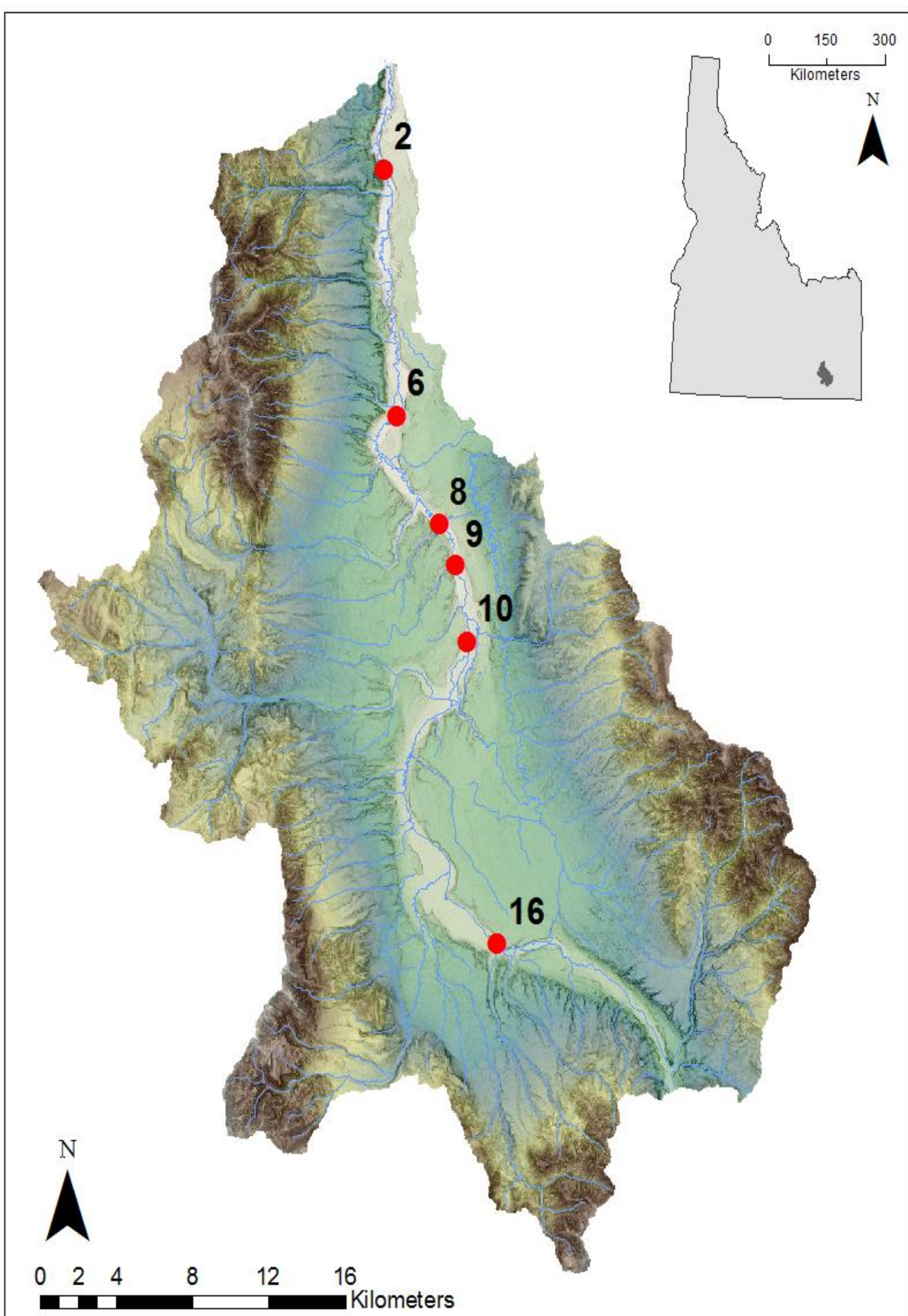
Hypotheses

- Vegetation will have moderate values in between the upstream and downstream sites, but will increase overall in the downstream direction
- Vegetation will be highest at sites with higher levels of total nitrogen, thus producing higher levels of DOC

Methods

- 6 sites were chosen along Marsh Creek
- We did an instream vegetation survey using the Braun-Blanquet cover scale every month from June to September
- Vegetation estimated at 10 meter intervals 0 to 100 meters transects
- Monthly water samples taken for TN and DOC concentrations at each site
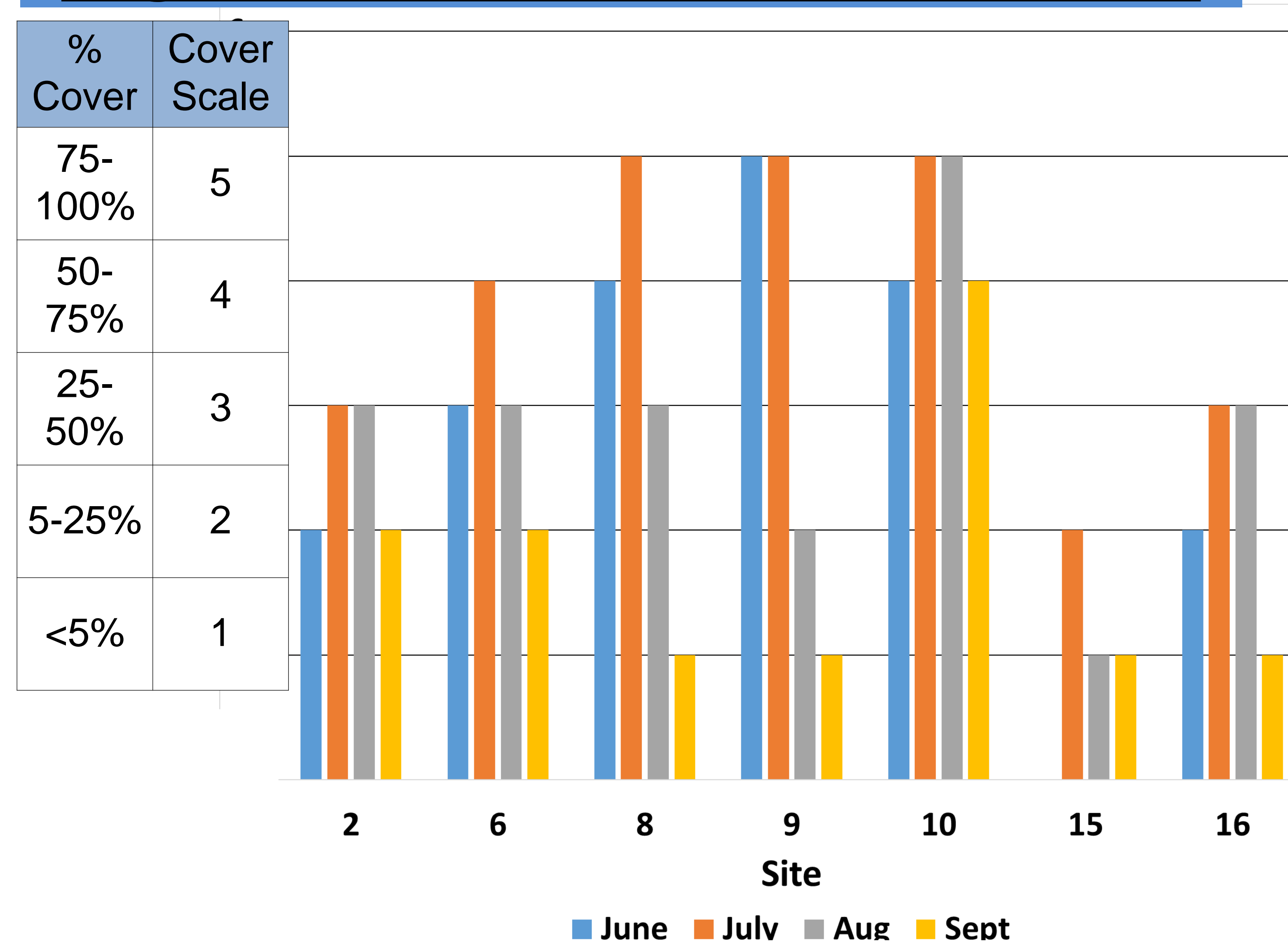
Vegetation cover varied across sites

% Cover	Cover Scale
75-100%	5
50-75%	4
25-50%	3
5-25%	2
<5%	1

Figure 2: Vegetation cover across sites.

Vegetation cover was negatively correlated with nitrogen
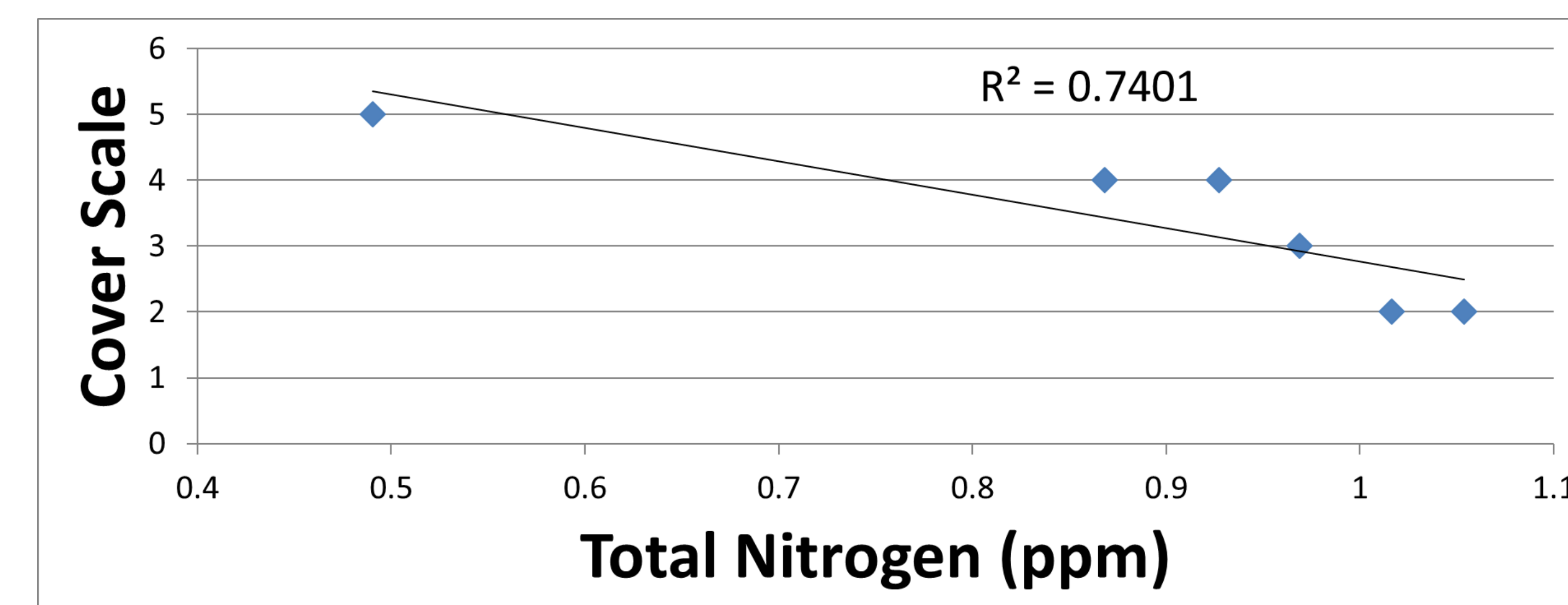

$R^2 = 0.7401$

Figure 3: Cover as a function of TN for June 2017.

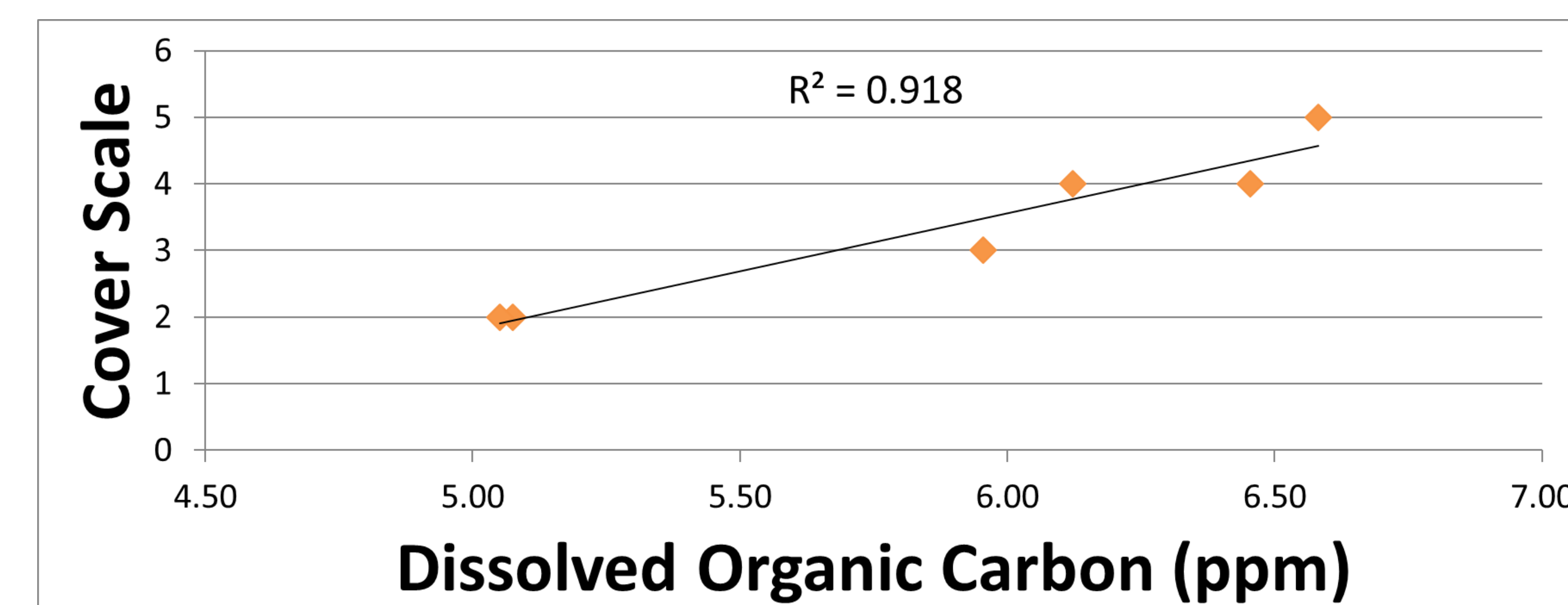## …and positively related to carbon

$R^2 = 0.918$

Figure 4: Cover as a function of DOC for June 2017.

Discussion & Future Directions

- Percent cover was negatively related to TN, could be due to uptake of N by vegetation
- Cover was positively related to DOC, suggesting that vegetation could be a source of DOC to the stream.
- Vegetation and water quality surveys will be continued throughout growing season.