



NEW UPDATES TO THE REPORT CARD
FOR THE CARMEL RIVER WATERSHED

Created by Erika Garig

NEW WAY TO GIVE THE ENTIRE WATERSHED A GRADE

Overall Carmel River Watershed Grade Table		
EEAs	Overall Condition for Each Category	Total Grade of Carmel River Watershed
Chemical & Physical	79	67
Biotic & Ecological	66	
Landscape	82	
Natural Disturbance	29	

NEW WAY TO GIVE THE ENTIRE WATERSHED A GRADE

$$\text{TOTAL} = (((1/3(\text{CHEMICAL \& PHYSICAL})) + (1/3(\text{BIOTIC \& ECOLOGICAL})) + (1/6(\text{LANDSCAPE})) + (1/6(\text{NATURAL DISTURBANCE}))) * 100$$

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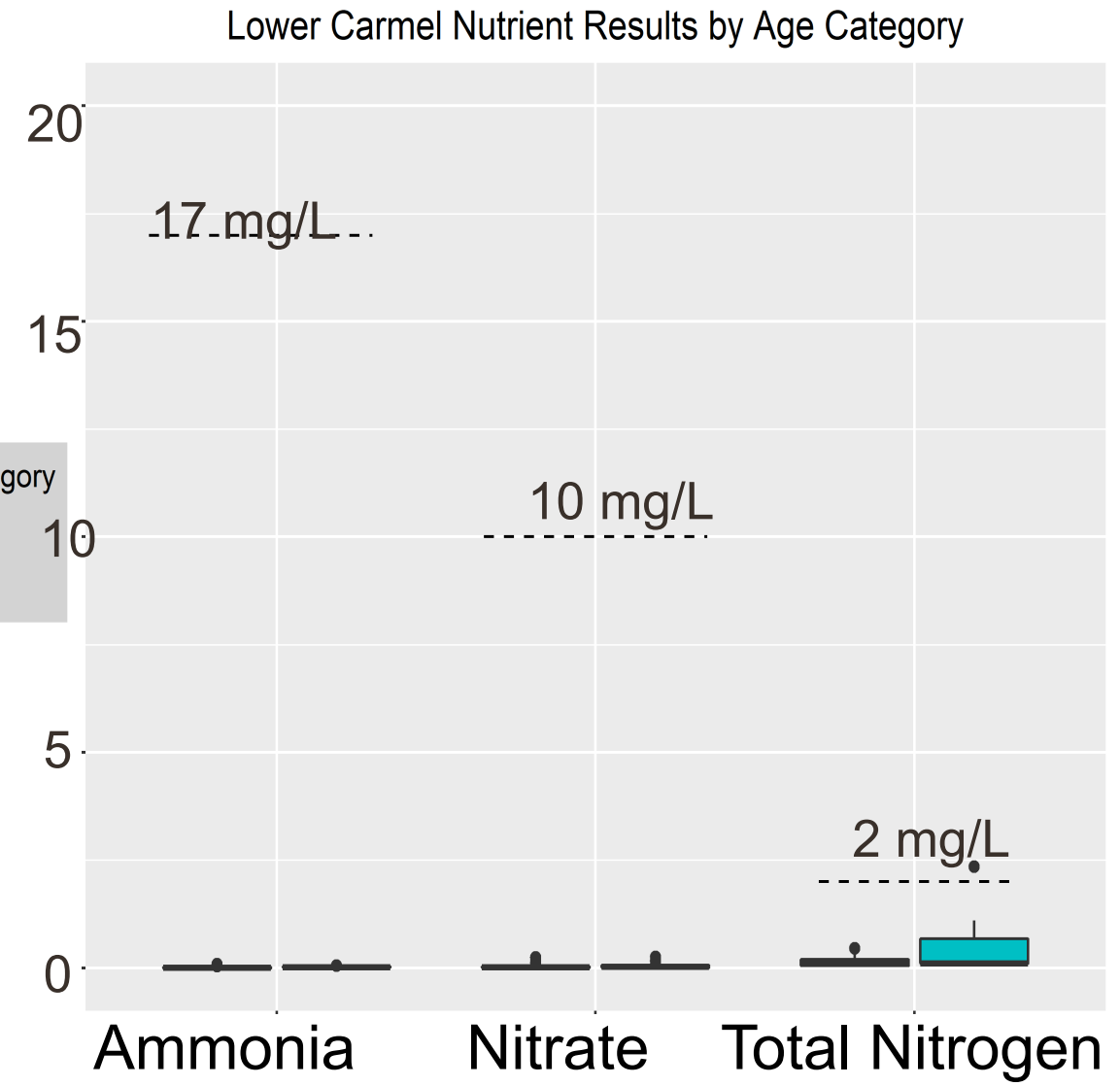
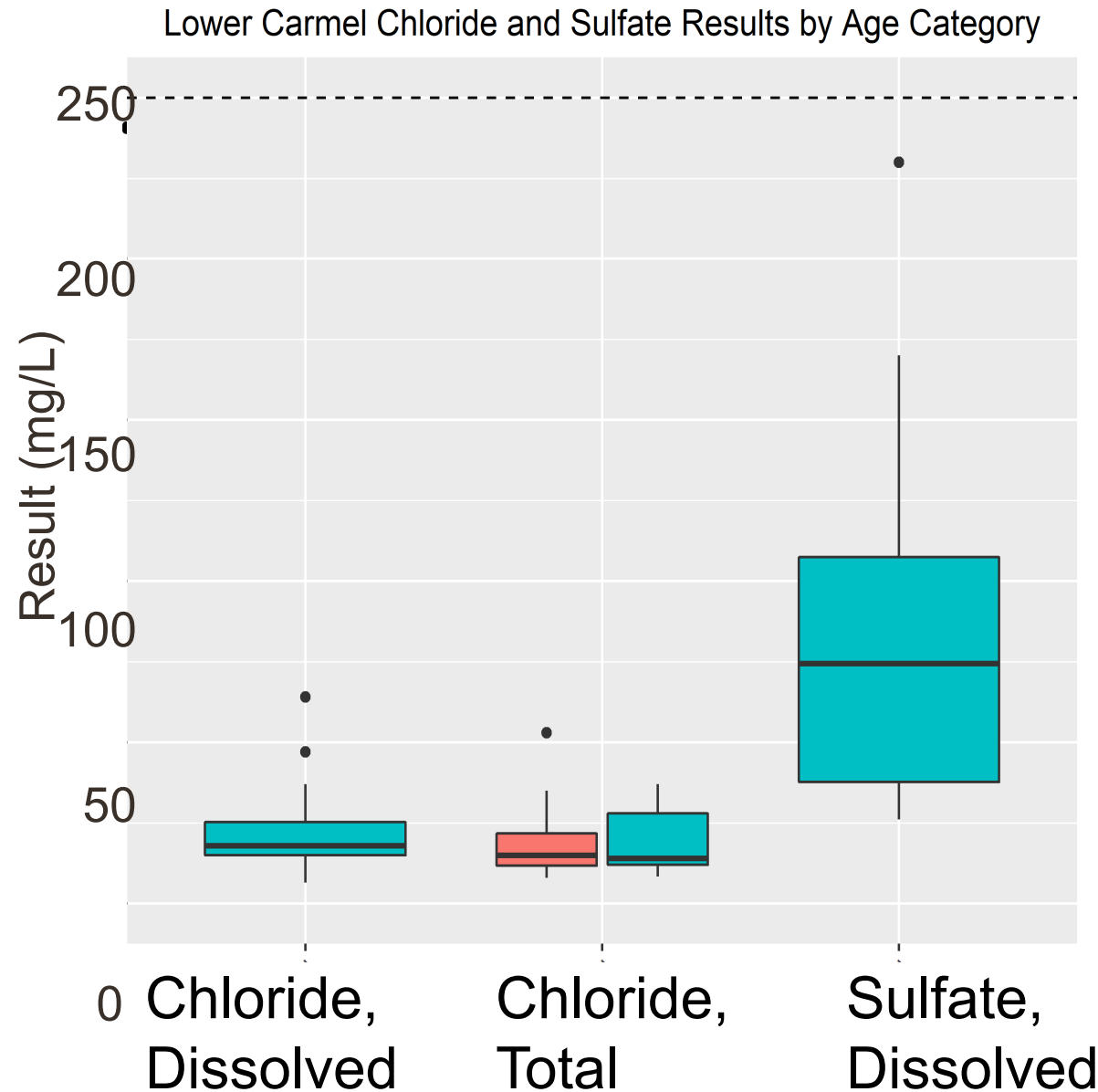
NEW INDICATOR/ CURRENT UPDATES

EEAs	Objectives	Indicators	Condition
Chemical & Physical	Improve and maintain water quality necessary for supporting healthy aquatic ecosystems.	Benthic macroinvertebrate communities	78
		Surface water chemistry (dissolved oxygen, conductivity, turbidity, temperature, pH)	97
	Manage water supply to provide sufficient flows for supporting aquatic life.	Nutrients and pesticides	74
		Unimpaired streamflow	68
Biotic & Ecological	Monitor and protect the California Central Coast steelhead population.	Adult steelhead count	12
		Juvenile steelhead population density	100
	Monitor and manage invasive riparian and aquatic species.	Aquatic invasive animal species such as the Brown trout, Striped bass, and New Zealand mudsnails	54
	Protect native bird populations.	Bird species diversity	96
Landscape	Enhance aquatic habitat connectivity.	Tributary flows critical for steelhead spawning	100
		Aquatic habitat barrier density	73
		River-floodplain connectivity	57
	Protect upland habitat connectivity.	Percentage of natural land	96
Natural Disturbance	Restore fire frequency to natural levels to protect human communities while allowing natural fire disturbance to support native flora and fauna.	Fire frequency	29

PESTICIDES AND NUTRIENTS

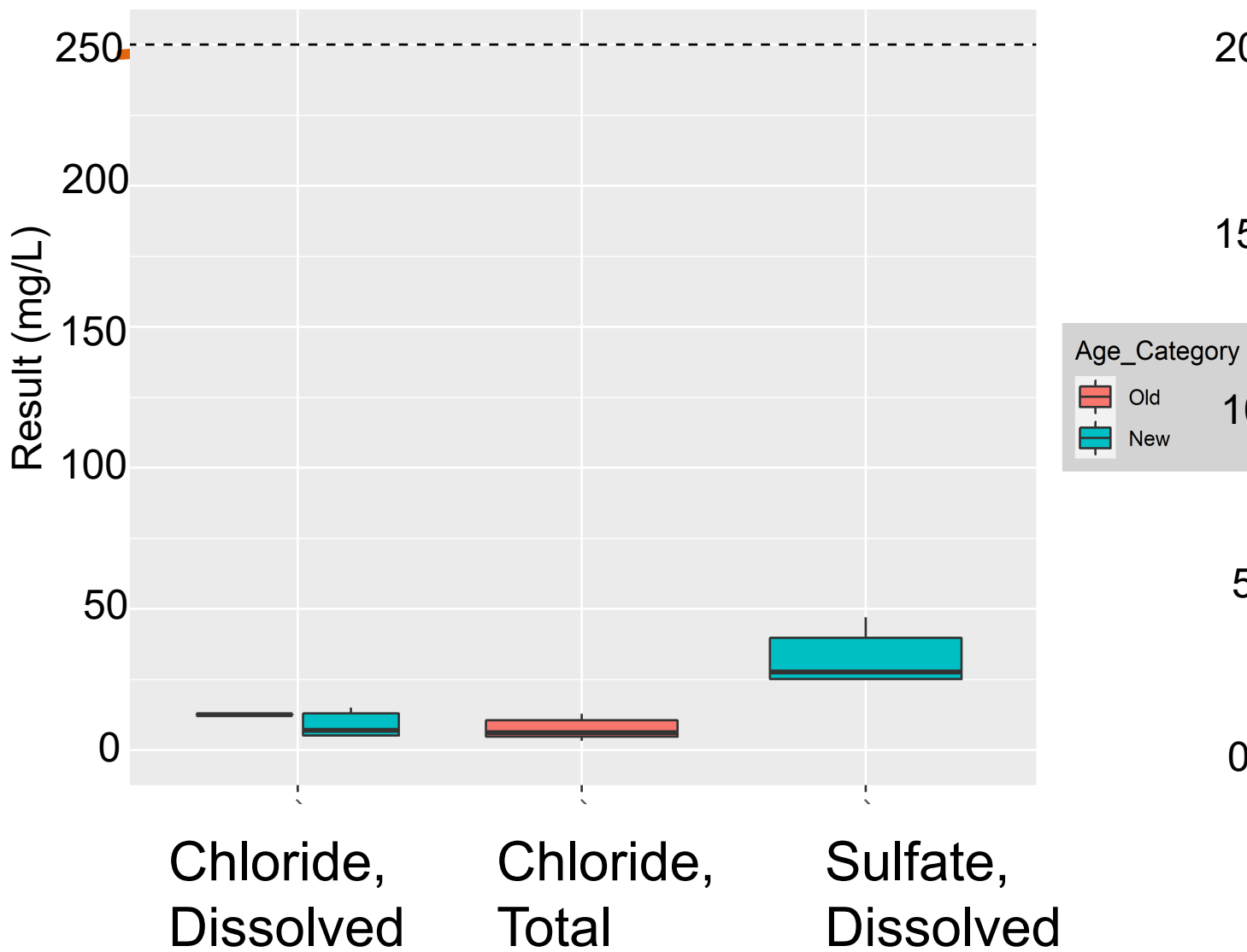
- Used Ceden data from 2000-2020
- Calculated score by comparing observations to EPA limits or Minimum Detection Limit (MDL)
- Grouped into old 2000-2010 and new 2011-2020 observations
- Nutrients reported for Carmel above (upper) and below (lower) Schulte rd. Pesticides were only recorded in lower Carmel.

LOWER CARMEL NUTRIENT GRAPHS

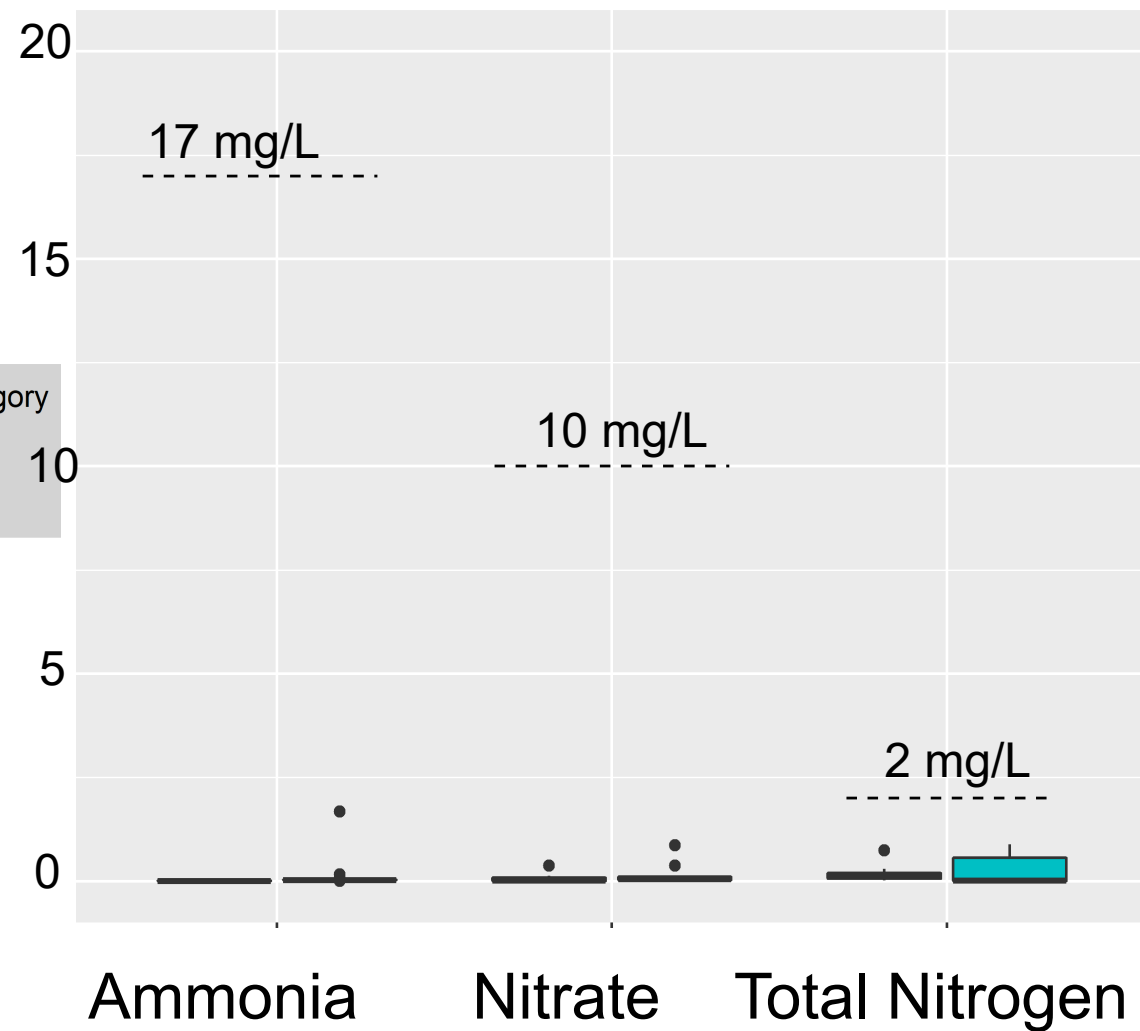


UPPER CARMEL NUTRIENT GRAPHS

Upper Carmel Chloride and Sulfate Results by Age Category

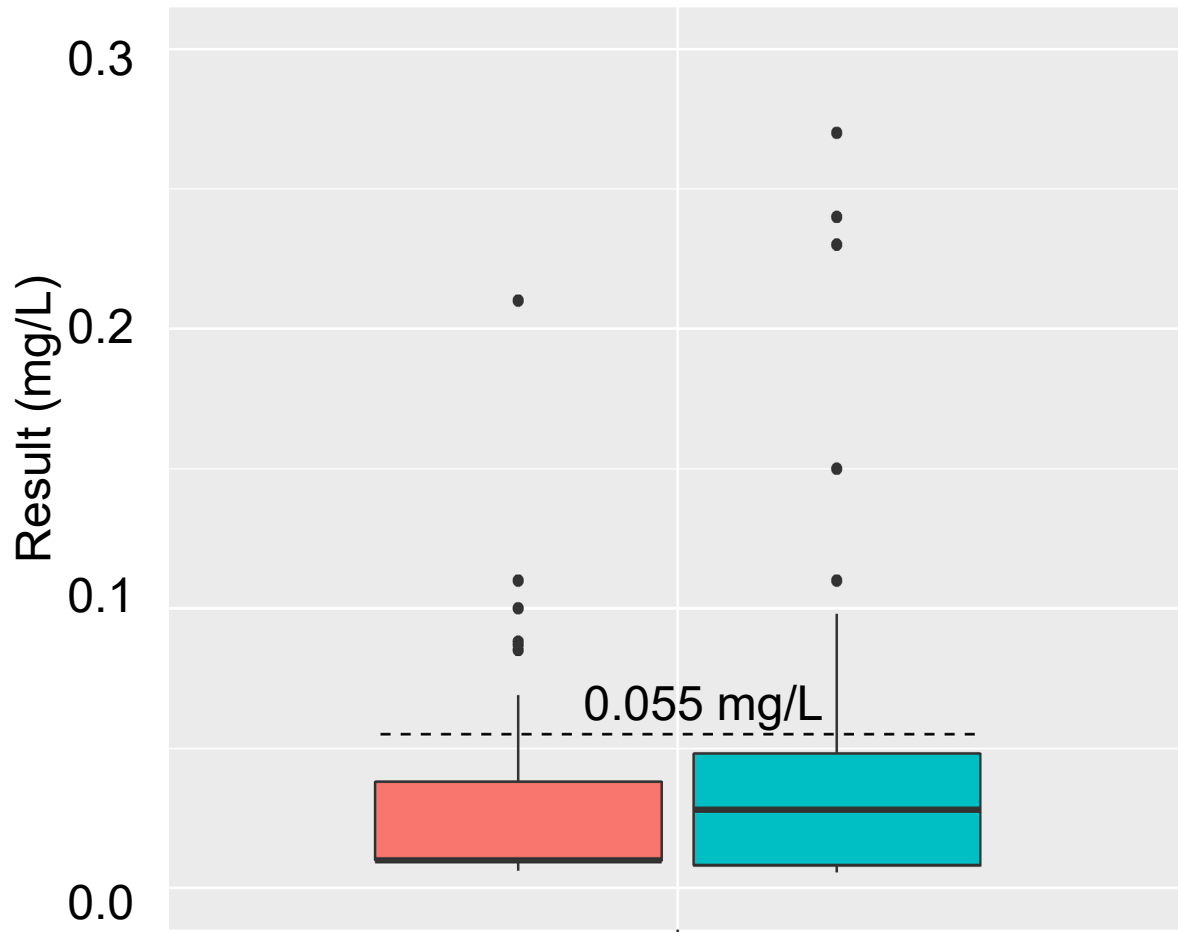


Upper Carmel Nutrient Results by Age Category

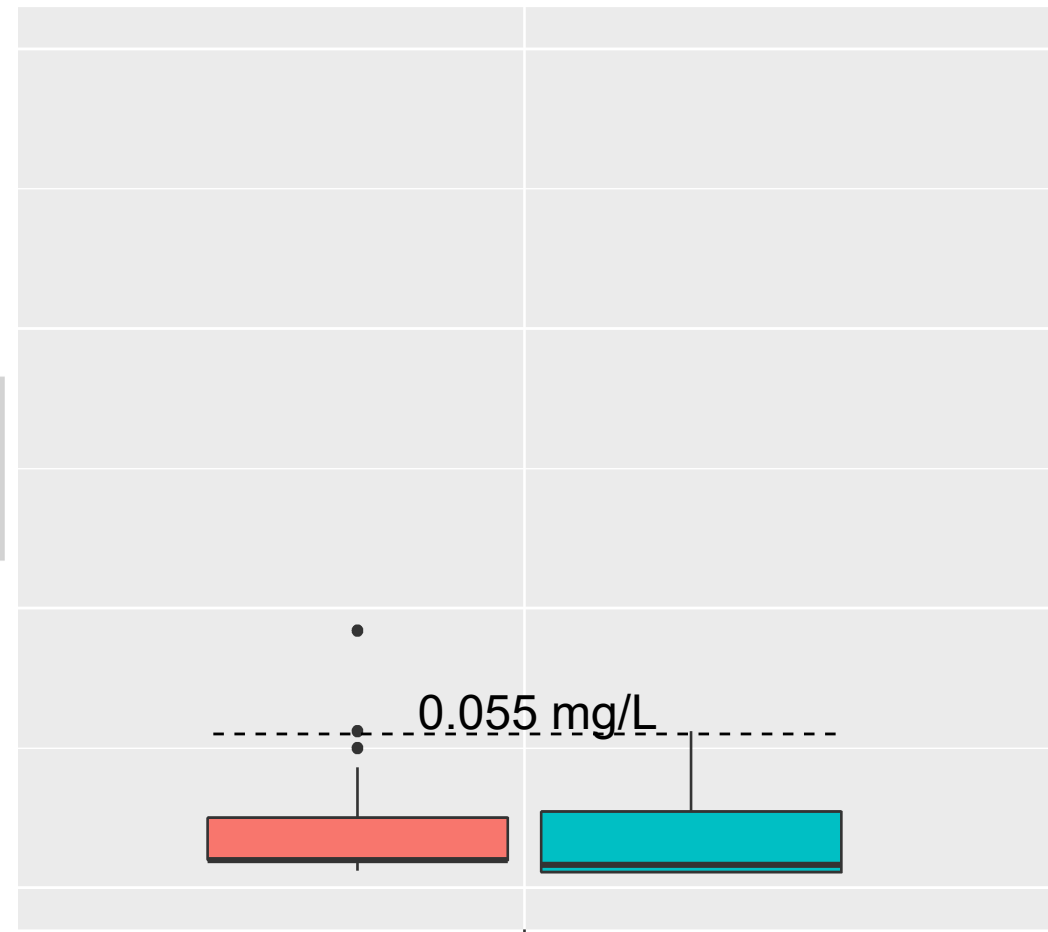
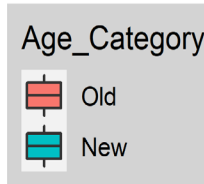


PHOSPHORUS IN LOWER CARMEL (LEFT) AND UPPER CARMEL (RIGHT)

Phosphorus in Lower Carmel

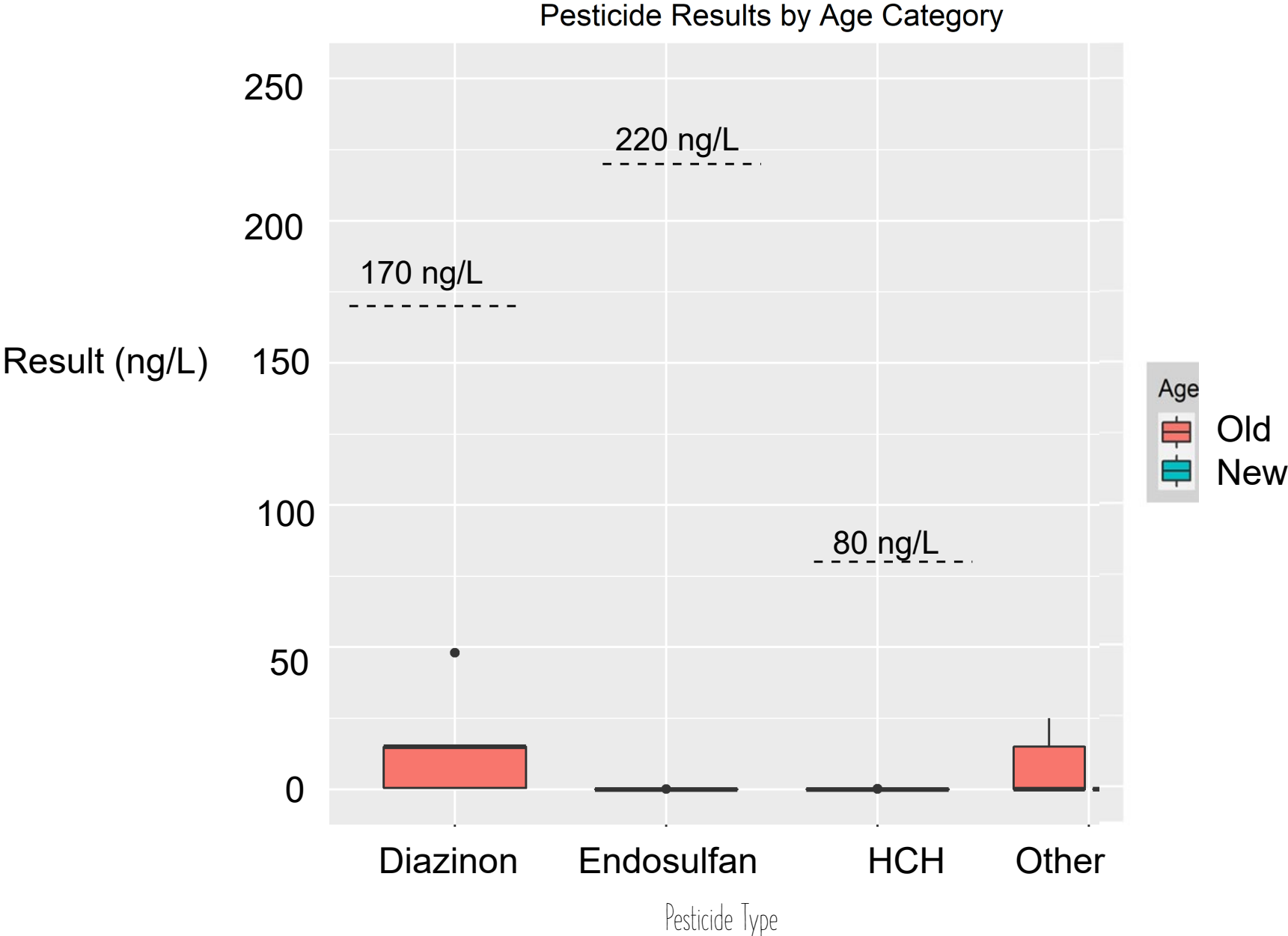


Phosphorus in Upper Carmel



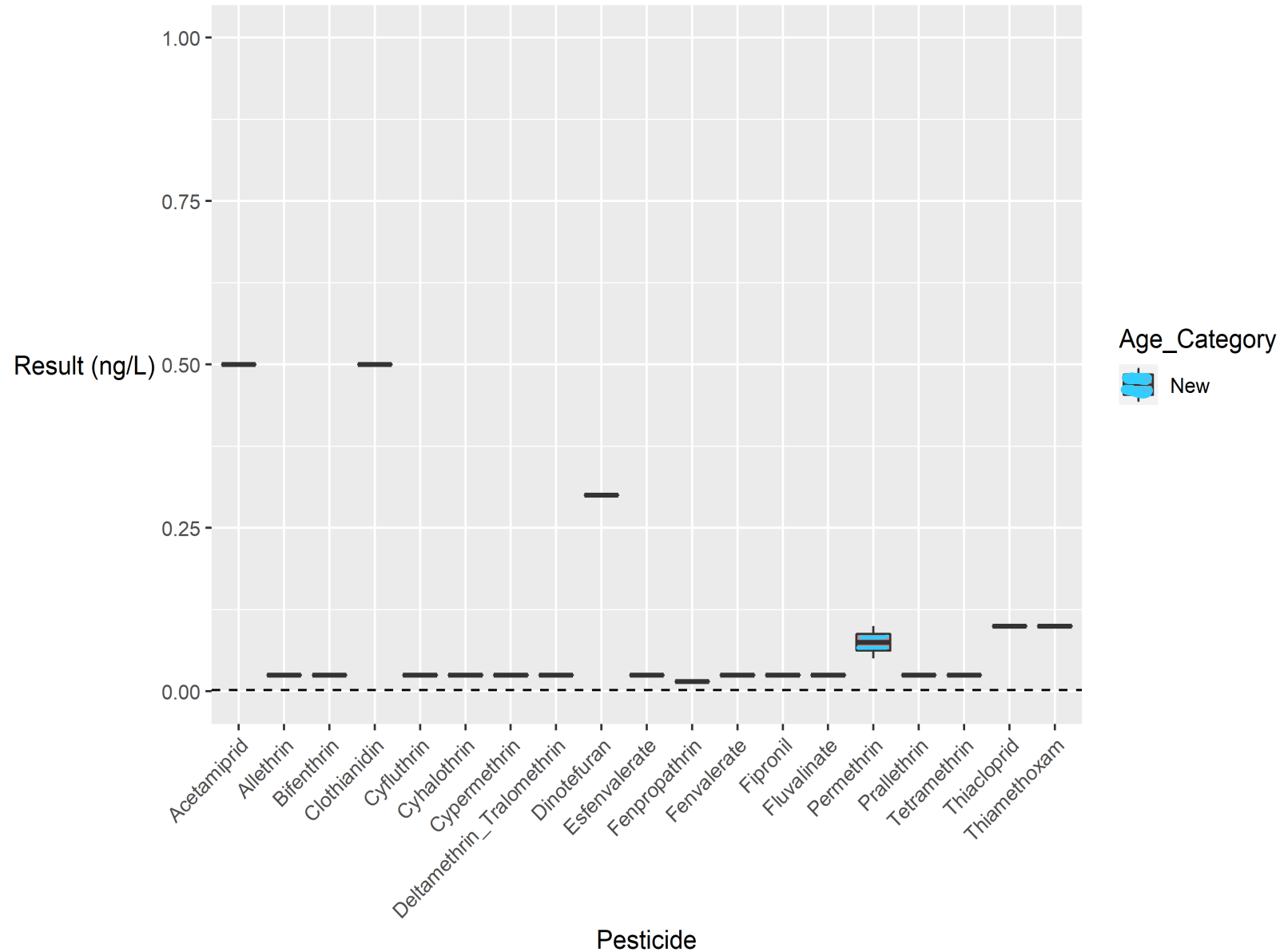
Total Phosphorus

OLD PESTICIDES WITHIN THE LOWER PORTION OF THE CARMEL RIVER WATERSHED

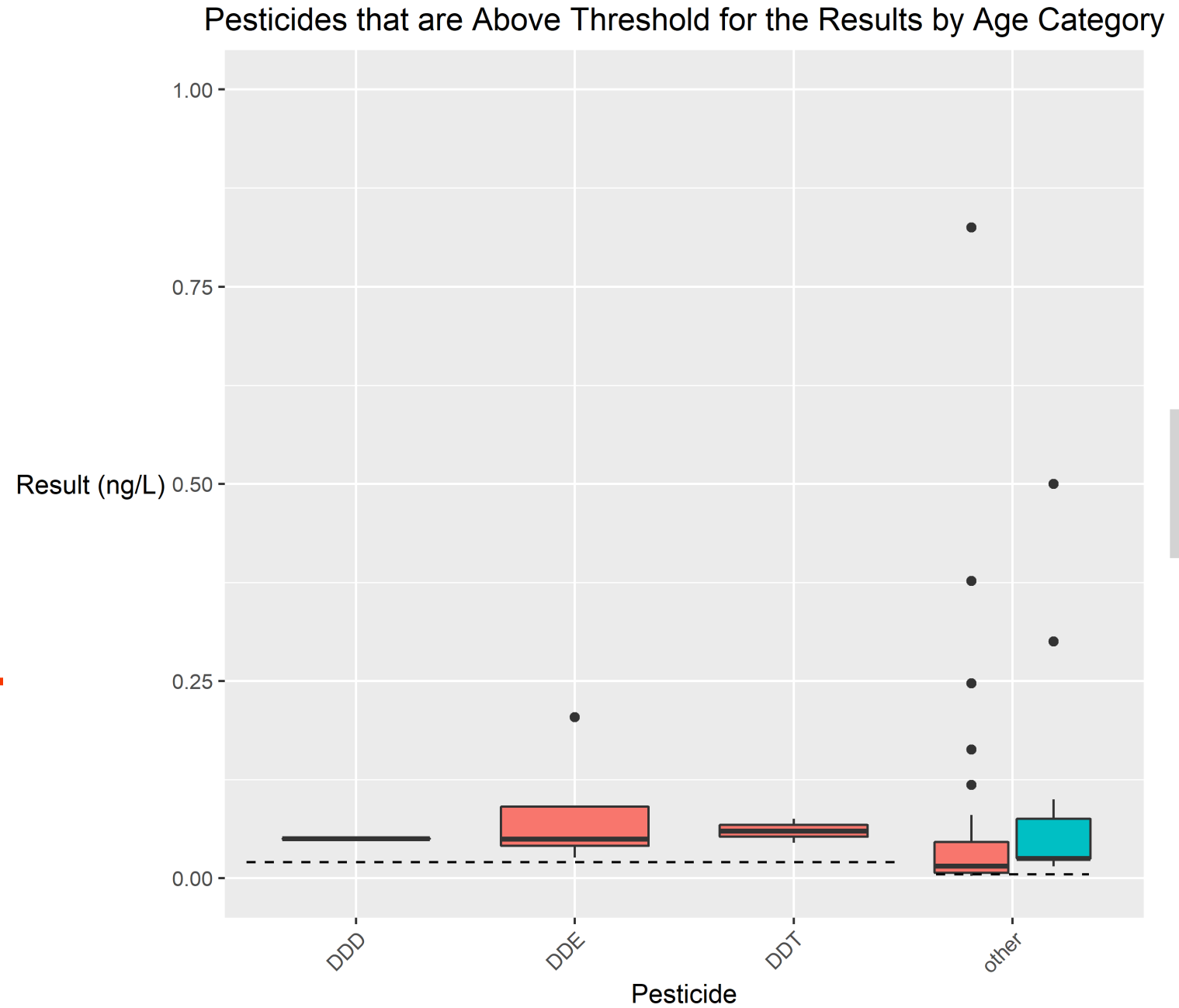


NEW PESTICIDES WITHIN THE LOWER PORTION OF THE CARMEL RIVER WATERSHED

New Pesticides Within Lower Carmel Results



PESTICIDE GRAPH ABOVE THRESHOLD LIMIT



SOURCES

- State Water Resources Control Board (2022). CEDEN [database]. Date accessed: 11/02/2022.
- Worcester K., Paradies D., & Hunt J. (2015). *California Central Coast Healthy Watersheds Project- Part 1*. Date accessed: 11/02/2022.