

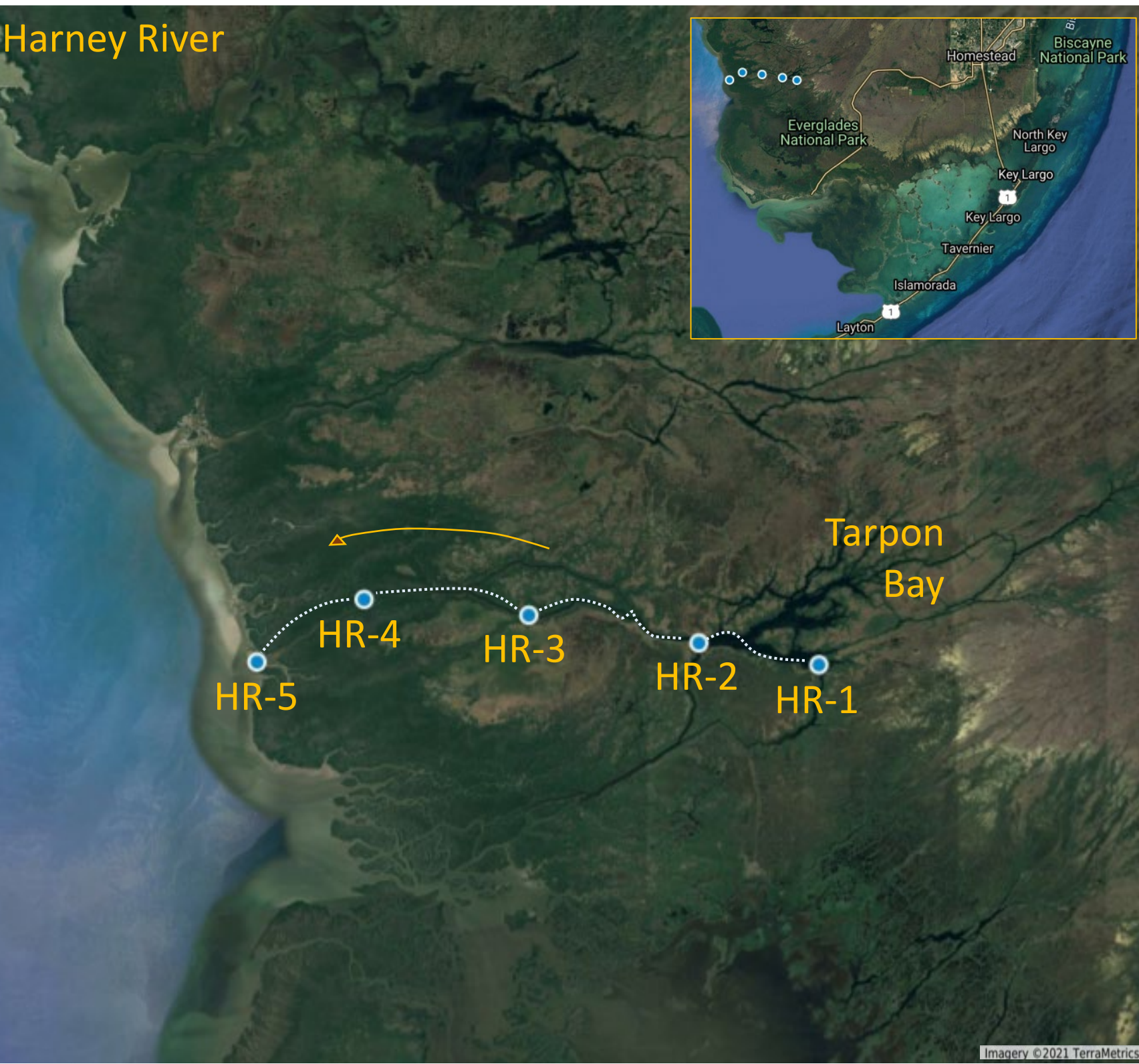
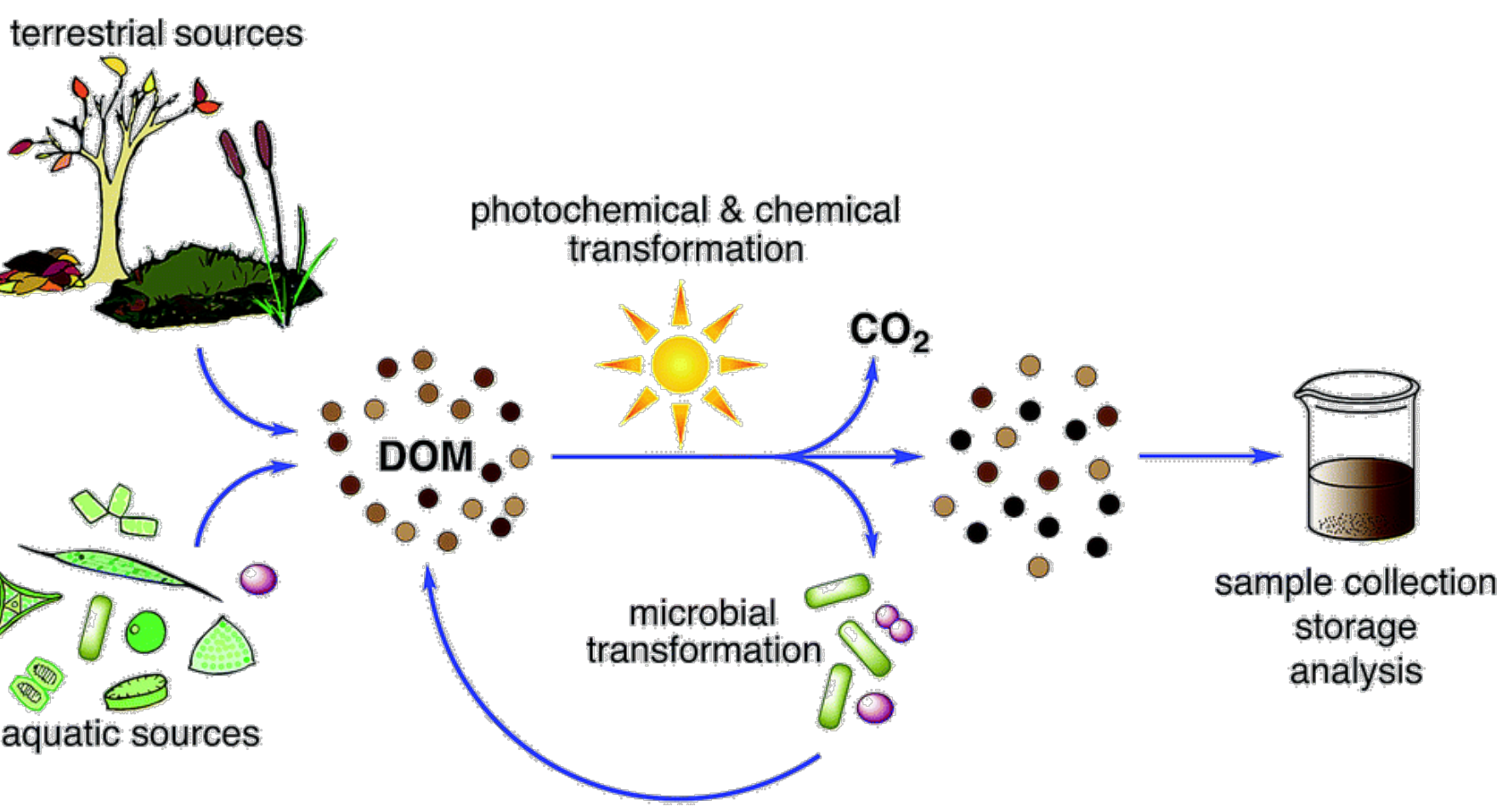
Molecular Level Analysis of DOM along a transect of the Harney River



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BACKGROUND

Our objective was to characterize the chemical complexity of dissolved organic matter (DOM) along the Harney River using ESI-TIMS-FT-ICR MS.

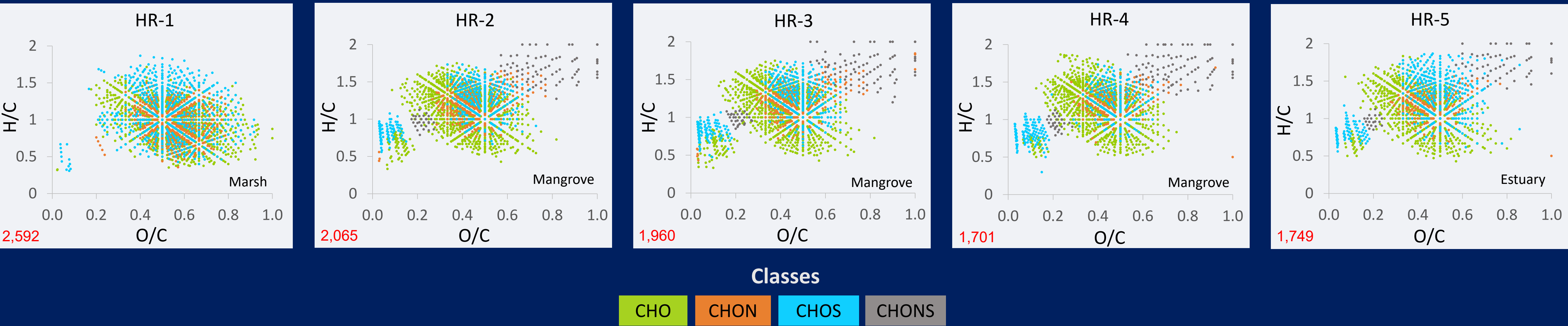


METHODS

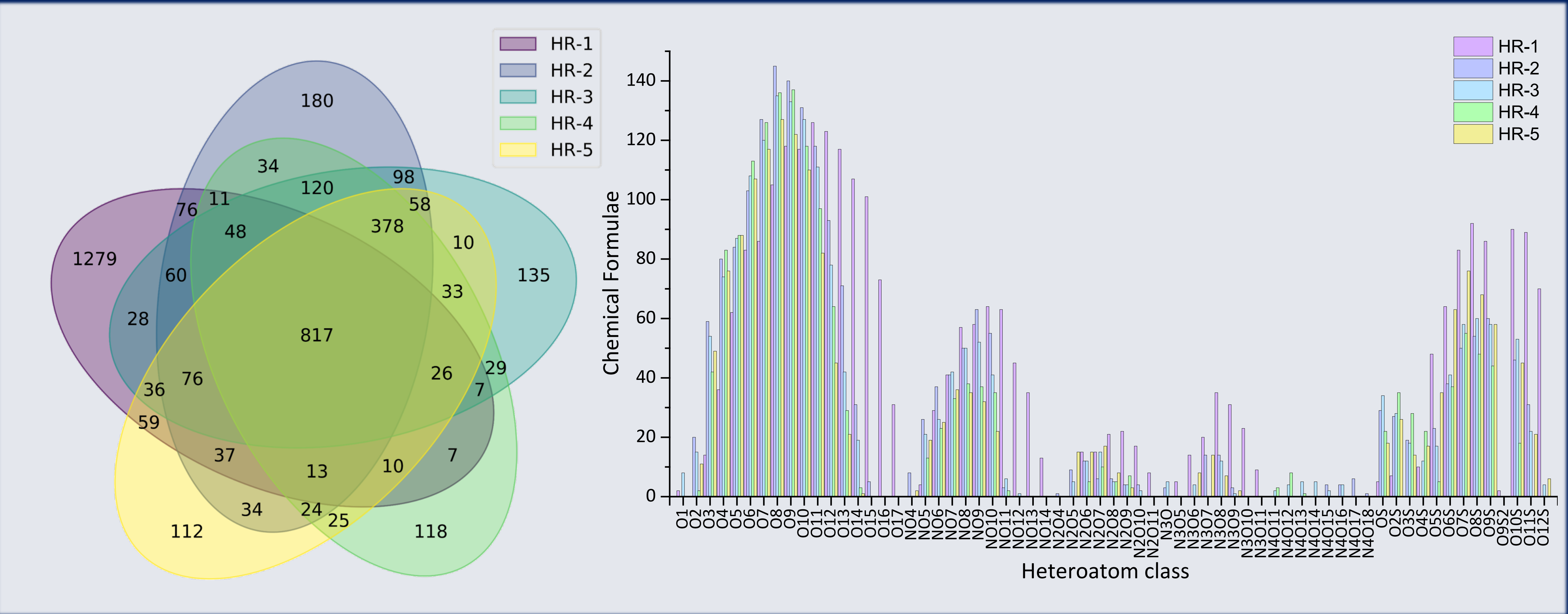
- Water Sample
- ↓ SPE
- SPE-DOM
- ↓
- ESI-TIMS-FT-ICR MS
- ↓
- Data Processing
- 2 L surface water samples were collected during the dry season.
 - SPE performed using Agilent PPL® cartridges.
 - SPE-DOM (denatured ethanol) analyzed in a Custom built Solarix 7T (-) ESI-TIMS-FT-ICR MS
 - Chemical formula constraint: $C_{1-50}H_{1-100}O_{1-20}N_{1-4}S_{1-2}$
 - Isomeric content estimated using in-house Python SAME algorithm.

DOM chemical diversity and isomeric complexity decrease along the Harney River.

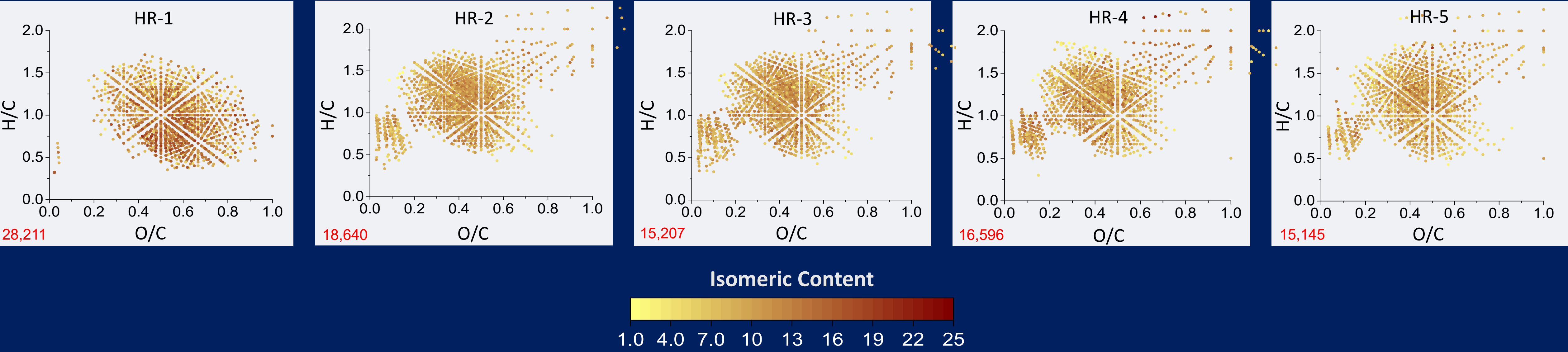
DOM compositional features



Chemical signature of DOM



DOM Isomeric complexity



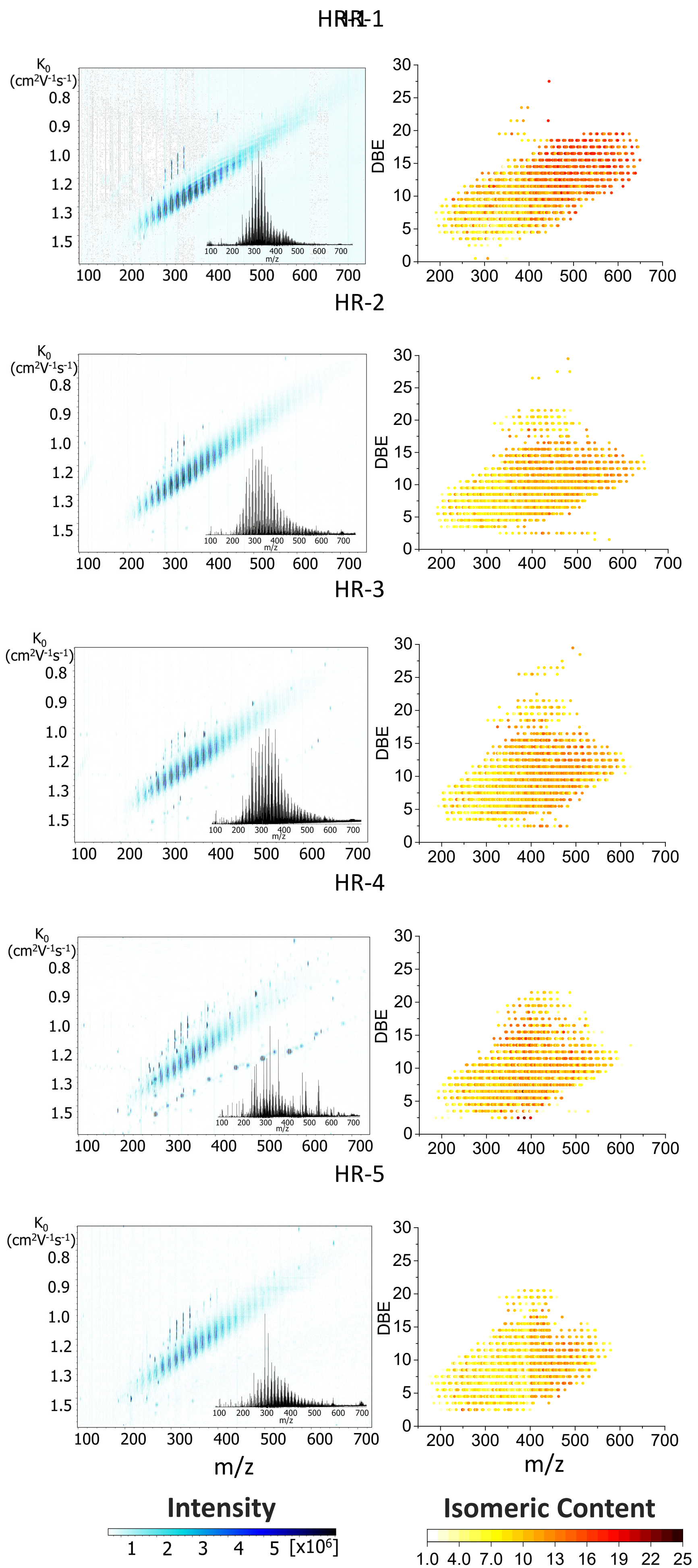
TIMS-FT-ICR MS is a useful technique to distinguish DOM signatures across different environments.

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RESULTS

DOM Chemical Characteristics



COLLABORATORS

Dr. Rudolff Jaffé, Dr. John Kominoski, Ryan Bremen, Kenny Anderson.

<http://environment.fiu.edu>



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