

A photograph of a marsh landscape. In the foreground, there is a dense field of tall, green and brown grasses. In the middle ground, there is a body of water on the right side. In the background, there are large, brown, hilly mountains under a clear blue sky. The text is overlaid on the image.

***MARSH PLANT ASSOCIATIONS OF
SOUTH SAN FRANCISCO BAY:
2005 COMPARATIVE STUDY***

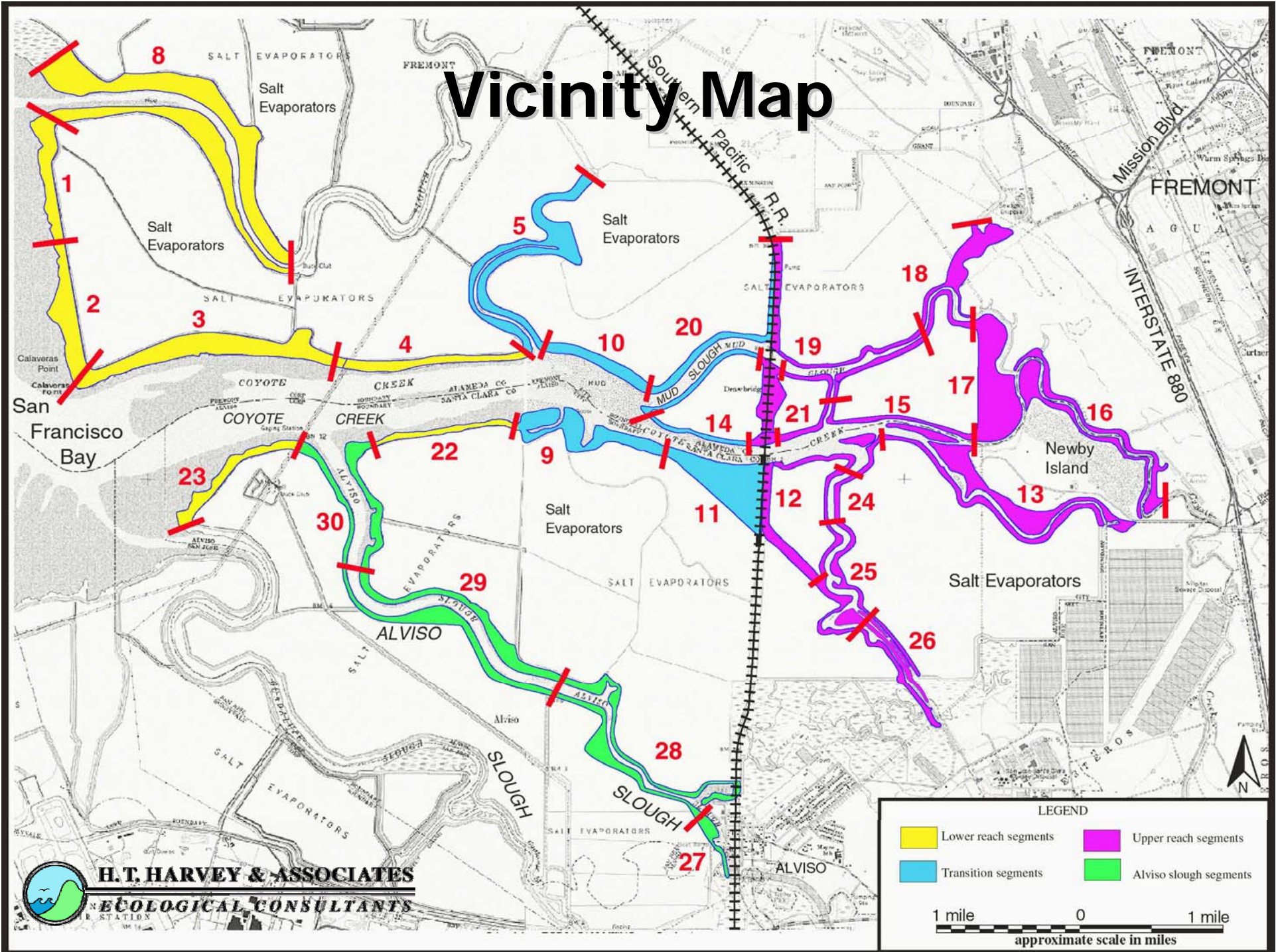
**H. T. Harvey & Associates
and
The City of San Jose**

Project Purpose

- Requirement of Water Pollution Control Plant (WPCP) 's NPDES permit from the RWQCB
- Document changes in marsh plant communities over time
- Hypothesize on sources of change and relative influence on marsh plant communities
 - WPCP outflow
 - Sedimentation
 - Tidal prism



Vicinity Map



A CIR (Color Infrared) orthophoto base map showing a landscape with a prominent red-toned area, likely vegetation, and a blue-toned area, likely water. The map is overlaid with a grid and has a blue border.

CIR Orthophoto Base Map



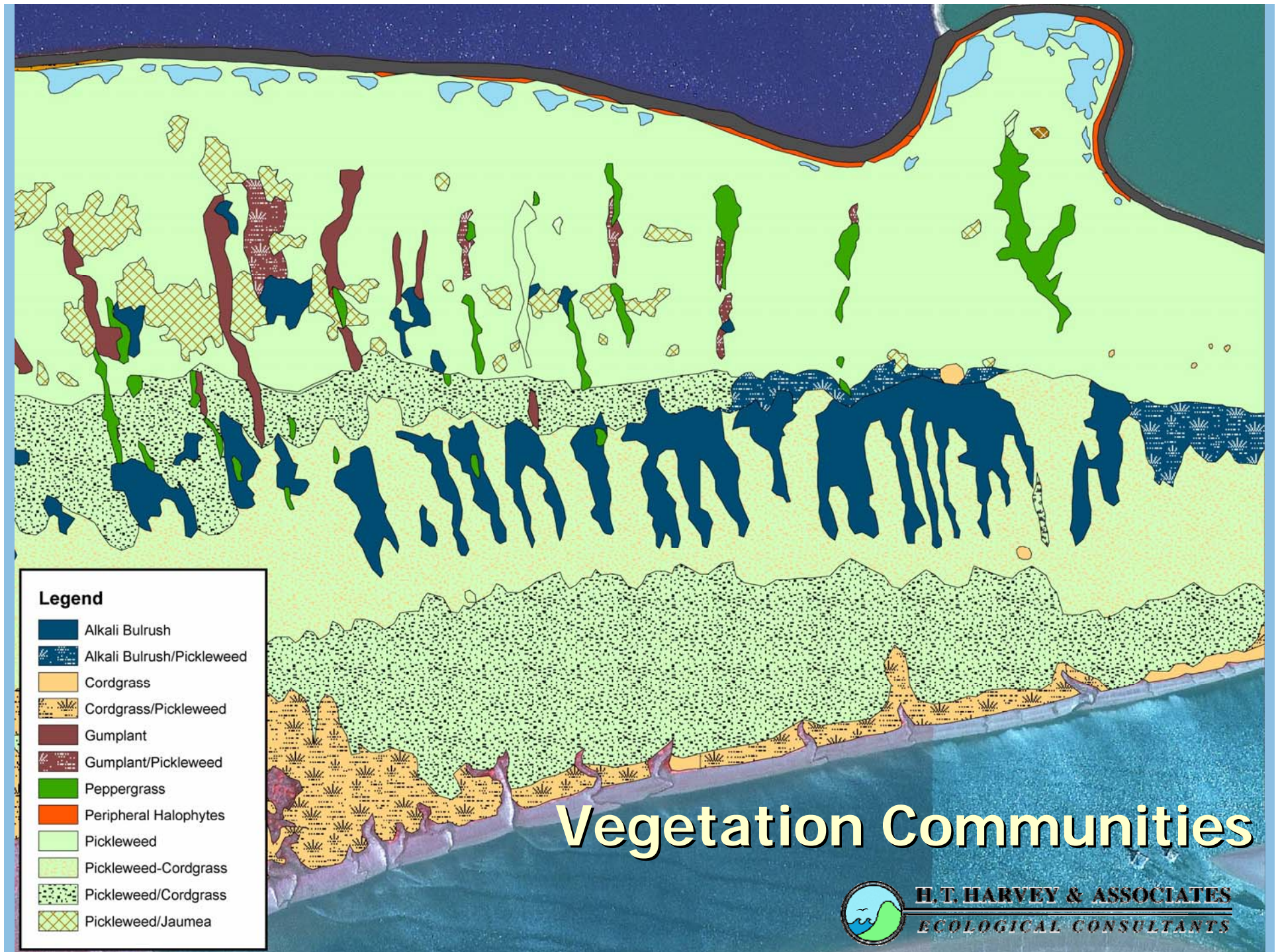
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Sample Vegetation Communities

- Species were mapped within these categories:
 - Dominant = 85-100%
 - Dominant/Subdominant = 51-85%/15-49%
 - Co-dominant = roughly equal percentages
- Pickleweed (Dominant)
- Alkali Bulrush / Peppergrass (Dominant / Subdominant)
- Pickleweed-Cordgrass (Co-dominant)

- Each plant community also assigned a 'Marsh Type' (Fresh, Brackish or Saline)





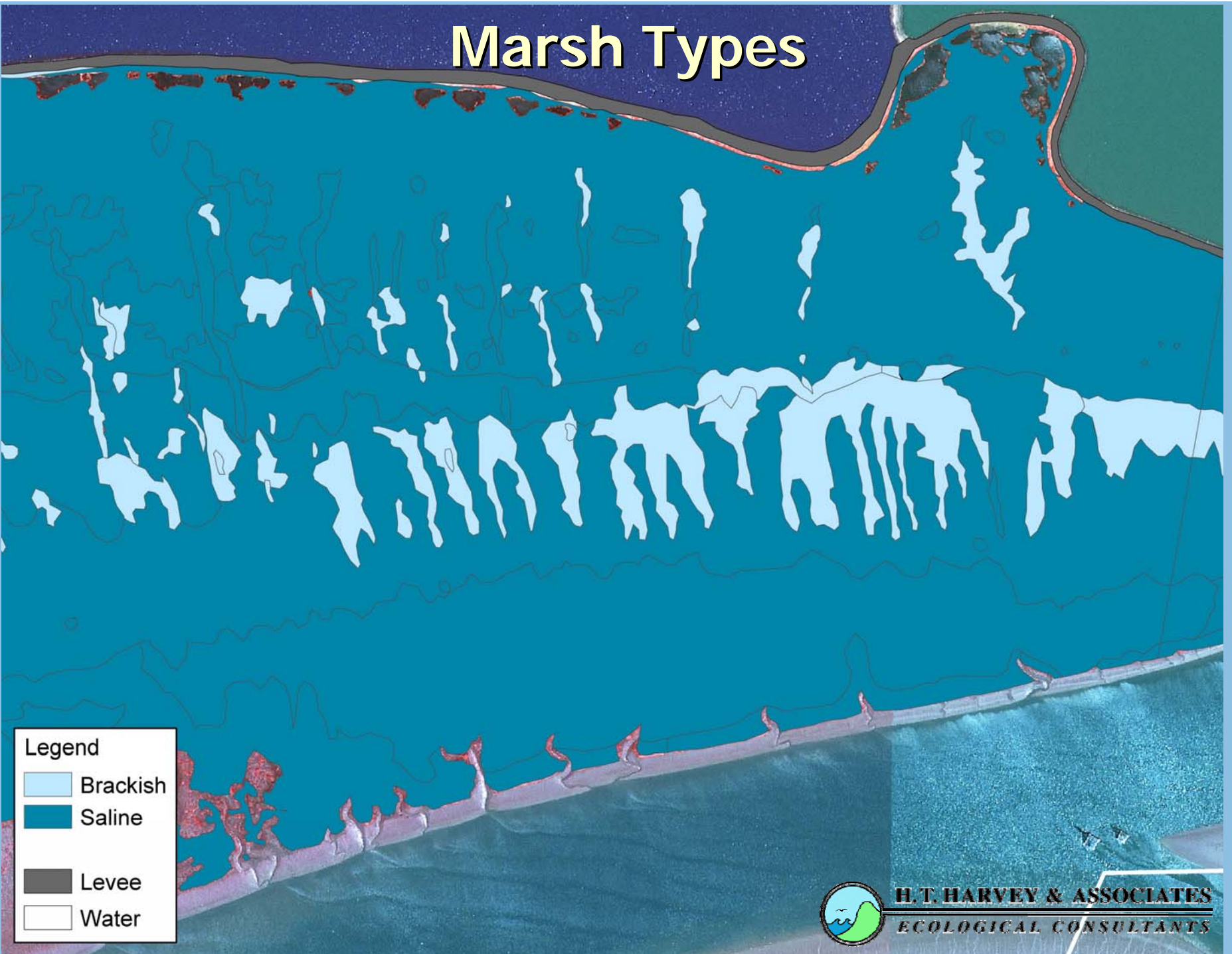
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Marsh Types



Legend

- Brackish
- Saline
- Levee
- Water



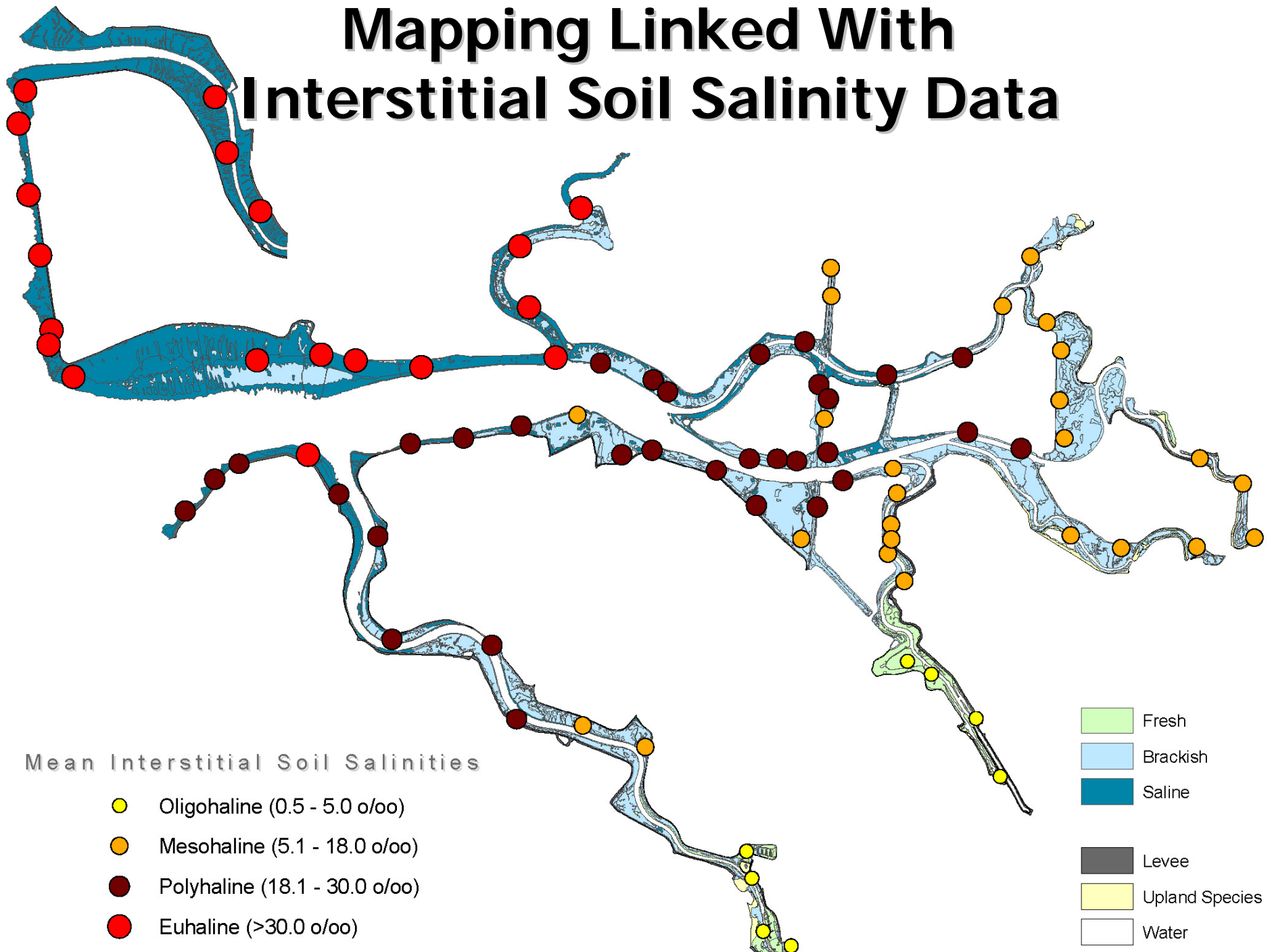
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Tidal and Edaphic Characteristics Study, 2000-2001

- Test the assumptions of saline, brackish and fresh species
 - Surface water levels and salinity
 - Soil porewater salinity and pH (84 sample sites)
 - Soil bulk density (84 sample sites)



Mapping Linked With Interstitial Soil Salinity Data



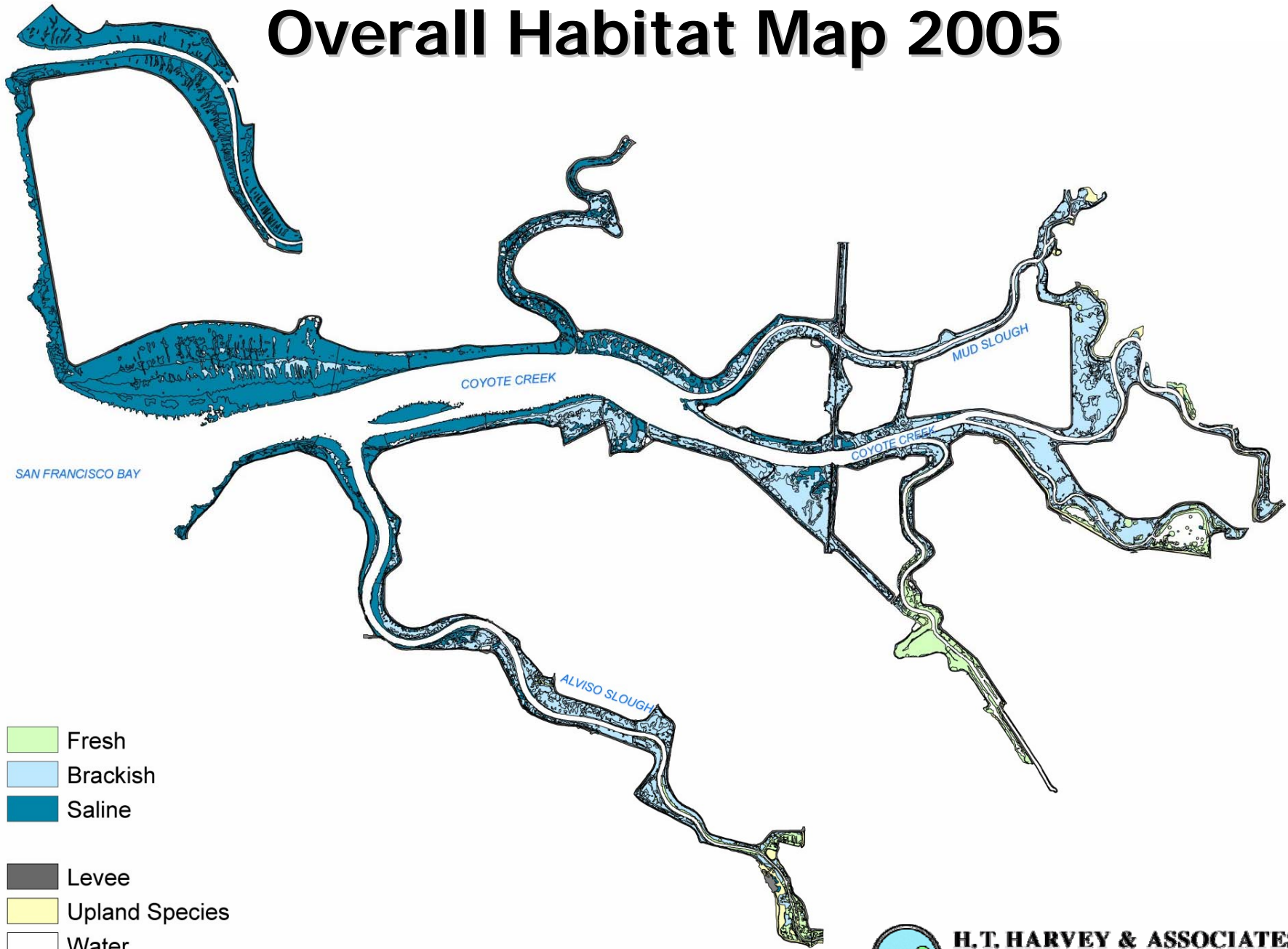
Salinities by Dominant Plant Species





| Dominant Plant Species | Salinity (ppt) | | |
|---------------------------------|----------------|------------|-------------|
| | Mean | Minimum | Maximum |
| Cattail (n=2) | 1.6 | 0.7 | 2.6 |
| California Bulrush (n=17) | 3.8 | 0.9 | 11.9 |
| Peppergrass (n=16) | 16.6 | 1.5 | 29.0 |
| Alkali Bulrush (n=118) | 17.6 | 1.1 | 35.0 |
| Alkali Bulrush-Pickleweed (n=1) | 22.0 | | |
| Cordgrass (n=15) | 27.0 | 15.0 | 49.7 |
| Pickleweed-Cordgrass (n=4) | 30.9 | 28.2 | 33.7 |
| Alkali Bulrush-Cordgrass (n=1) | 32.0 | | |
| Gumplant (n=1) | 35.1 | | |
| Saltgrass (n=1) | 39.4 | | |
| Pickleweed (n=76) | 40.9 | 6.9 | 70.0 |

*Note: Hyphenated species indicate a co-dominant situation.



Overall Habitat Map 2005



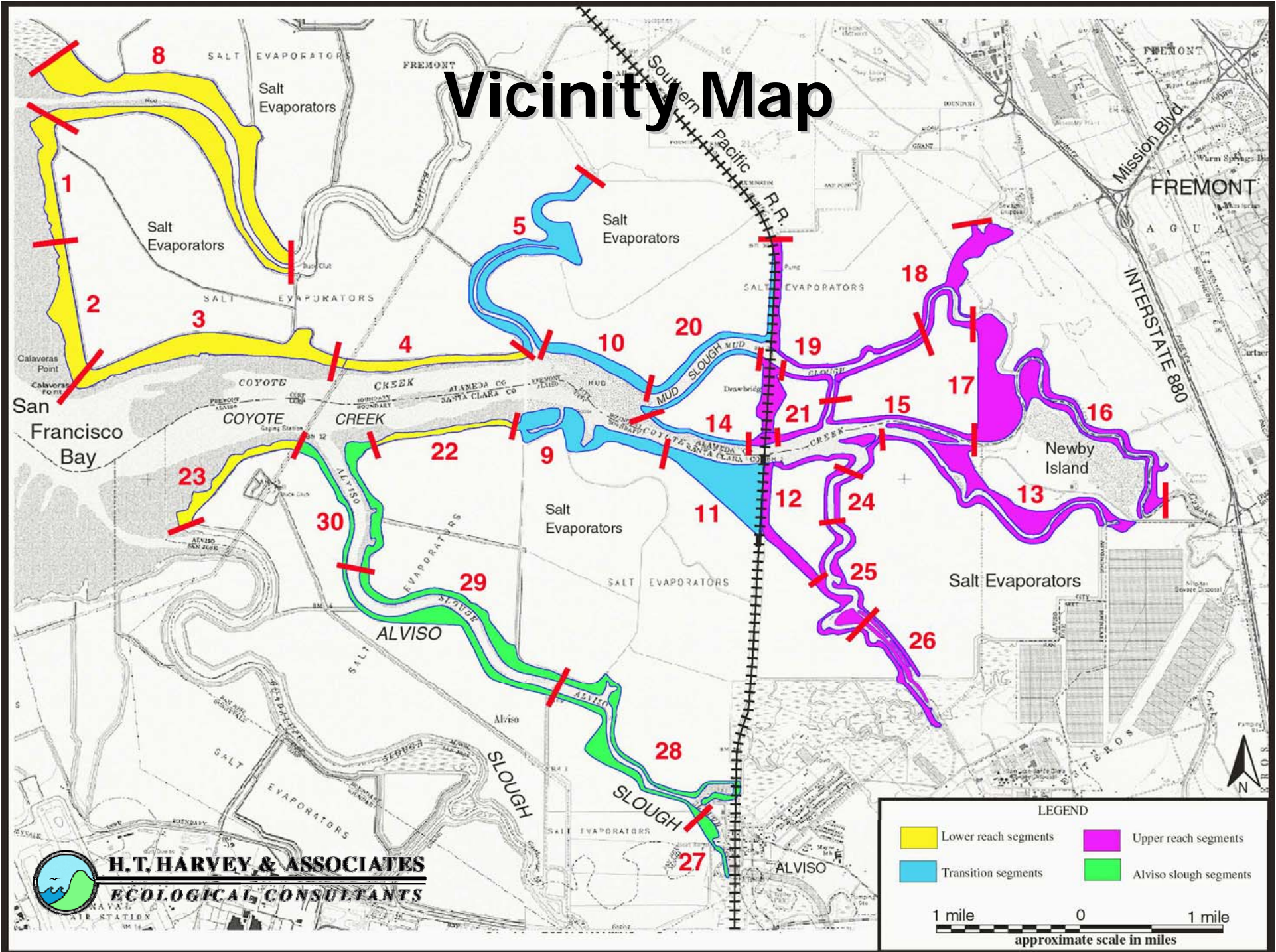
-  Fresh
-  Brackish
-  Saline
-  Levee
-  Upland Species
-  Water

Conclusions Related to the SBSP Restoration Project

- Sediment accretion and new marsh development in the far South Bay
- Dynamic nature of the changes in marsh type



Vicinity Map



1989

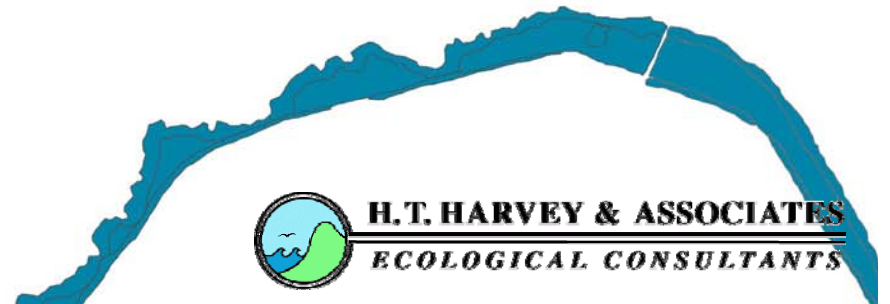
Legend

- Saline
- Water



San Francisco Bay

Coyote Creek



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1999

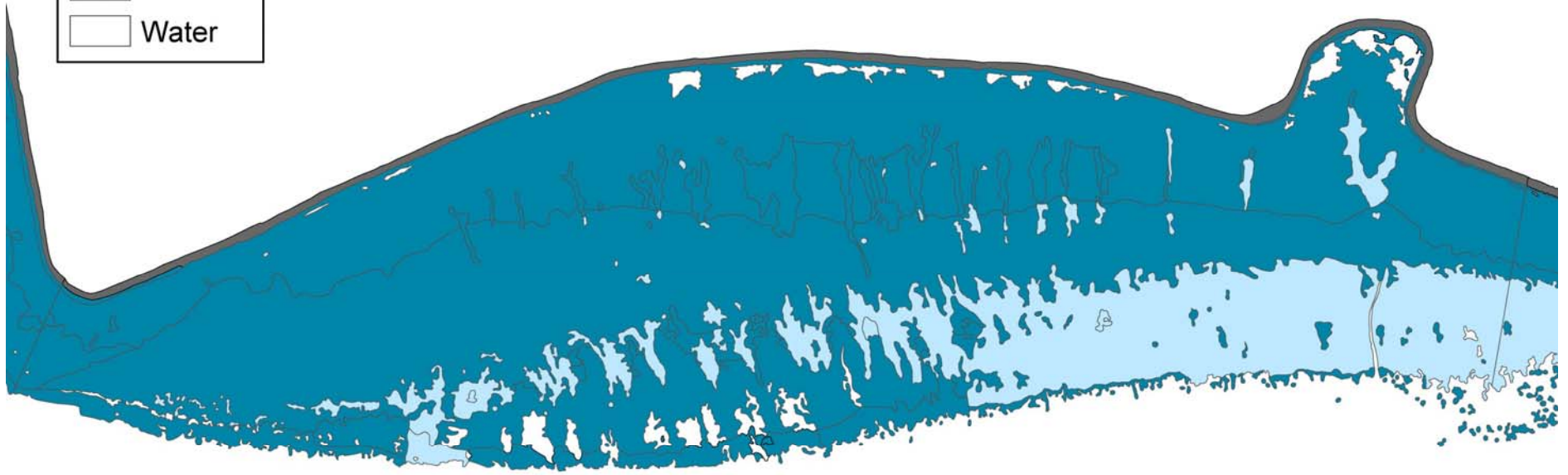
Legend

 Brackish

 Saline

 Levee

 Water



Coyote Creek

San Francisco Bay



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2001

Legend

- Brackish
- Saline
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Coyote Creek

San Francisco Bay



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2003

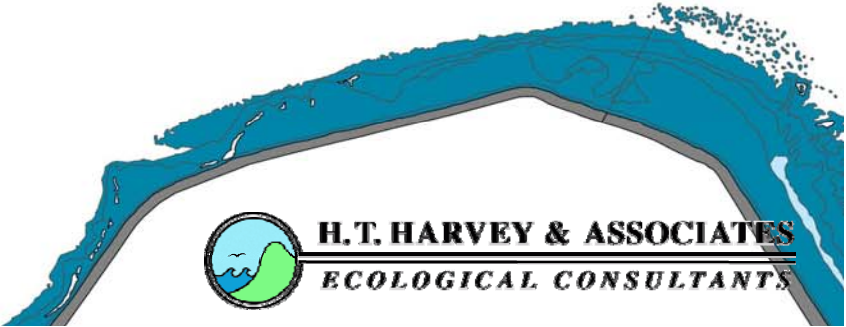
Legend

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Coyote Creek

San Francisco Bay

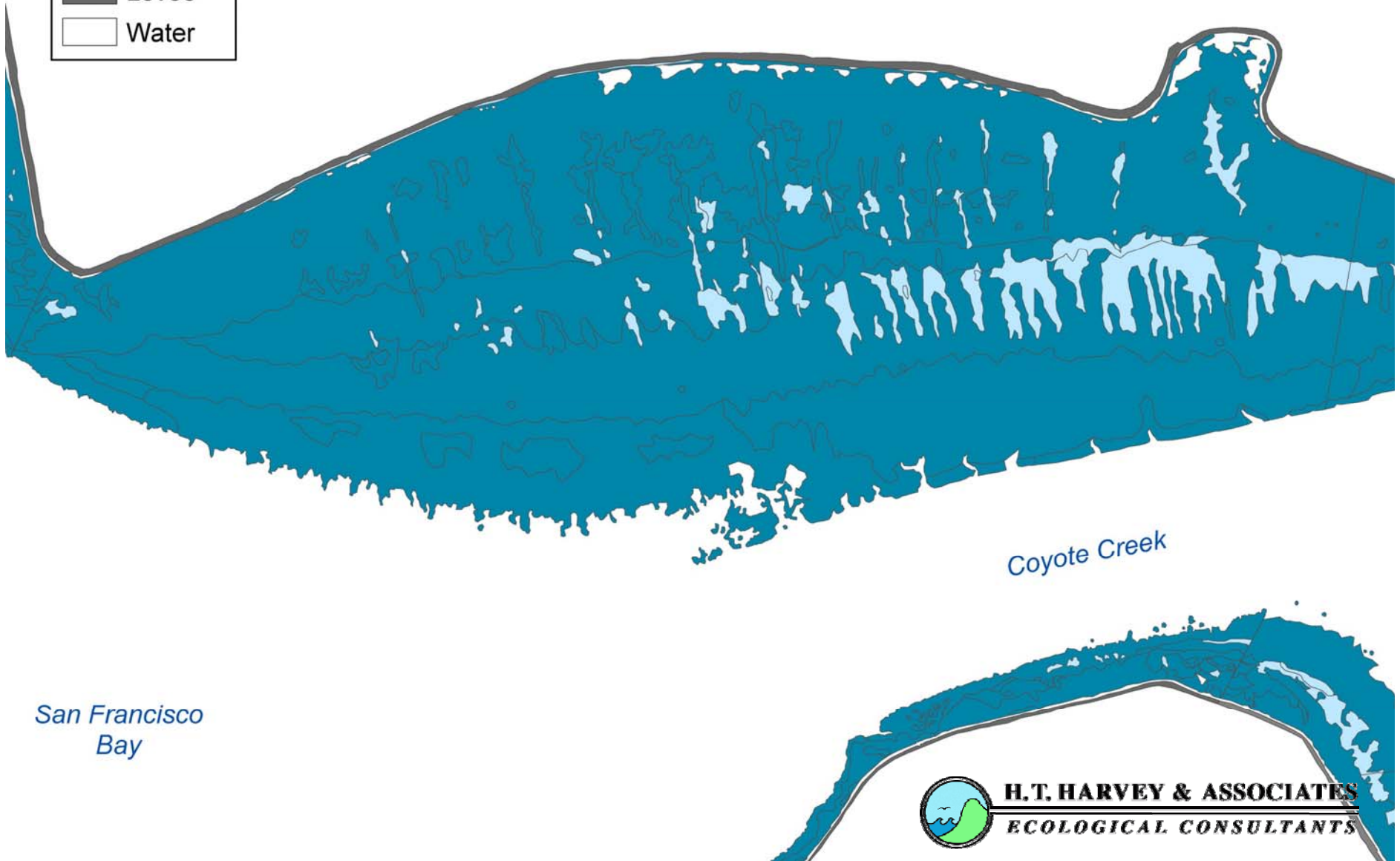


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2005

Legend

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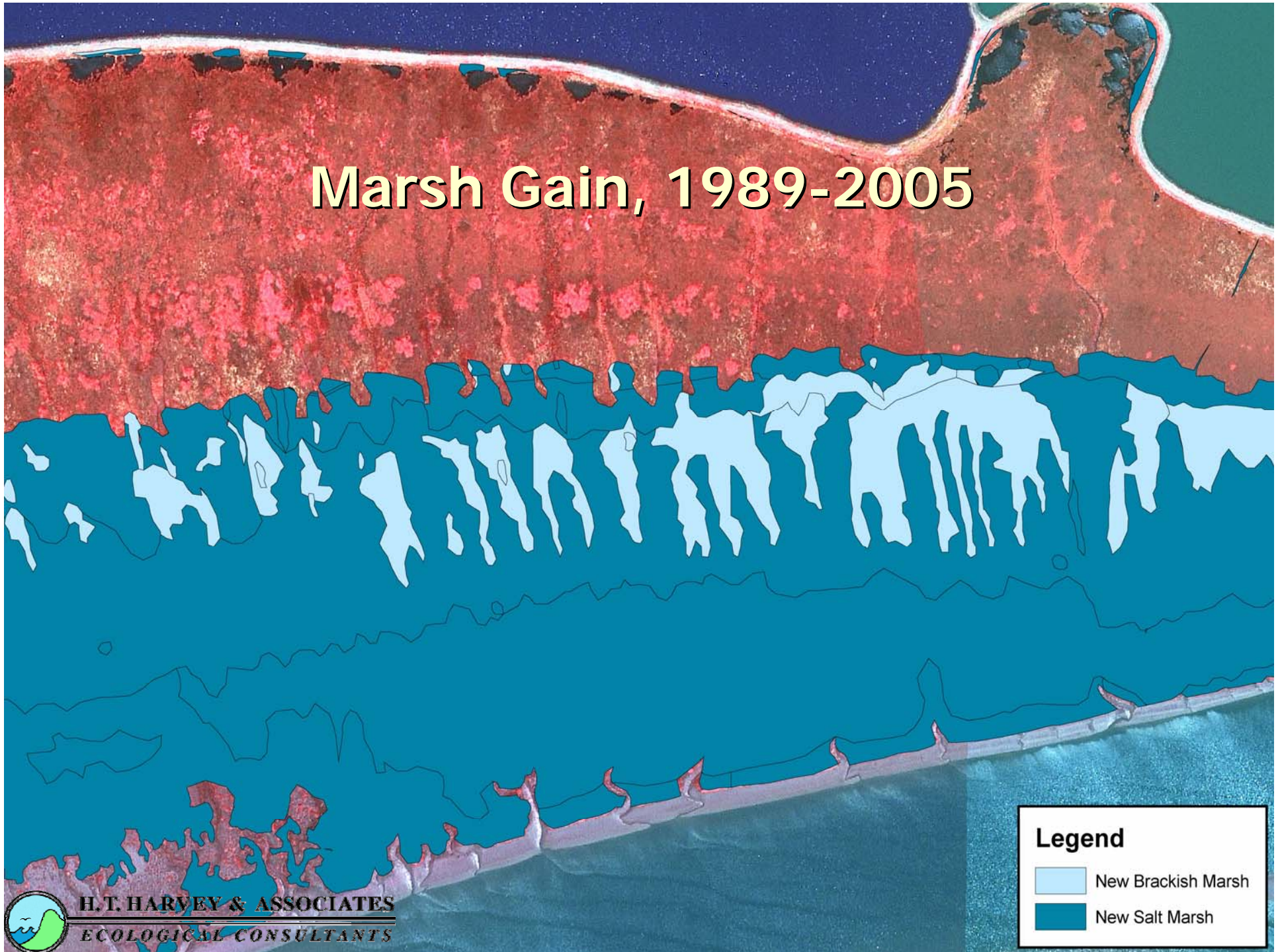
San Francisco Bay

Coyote Creek




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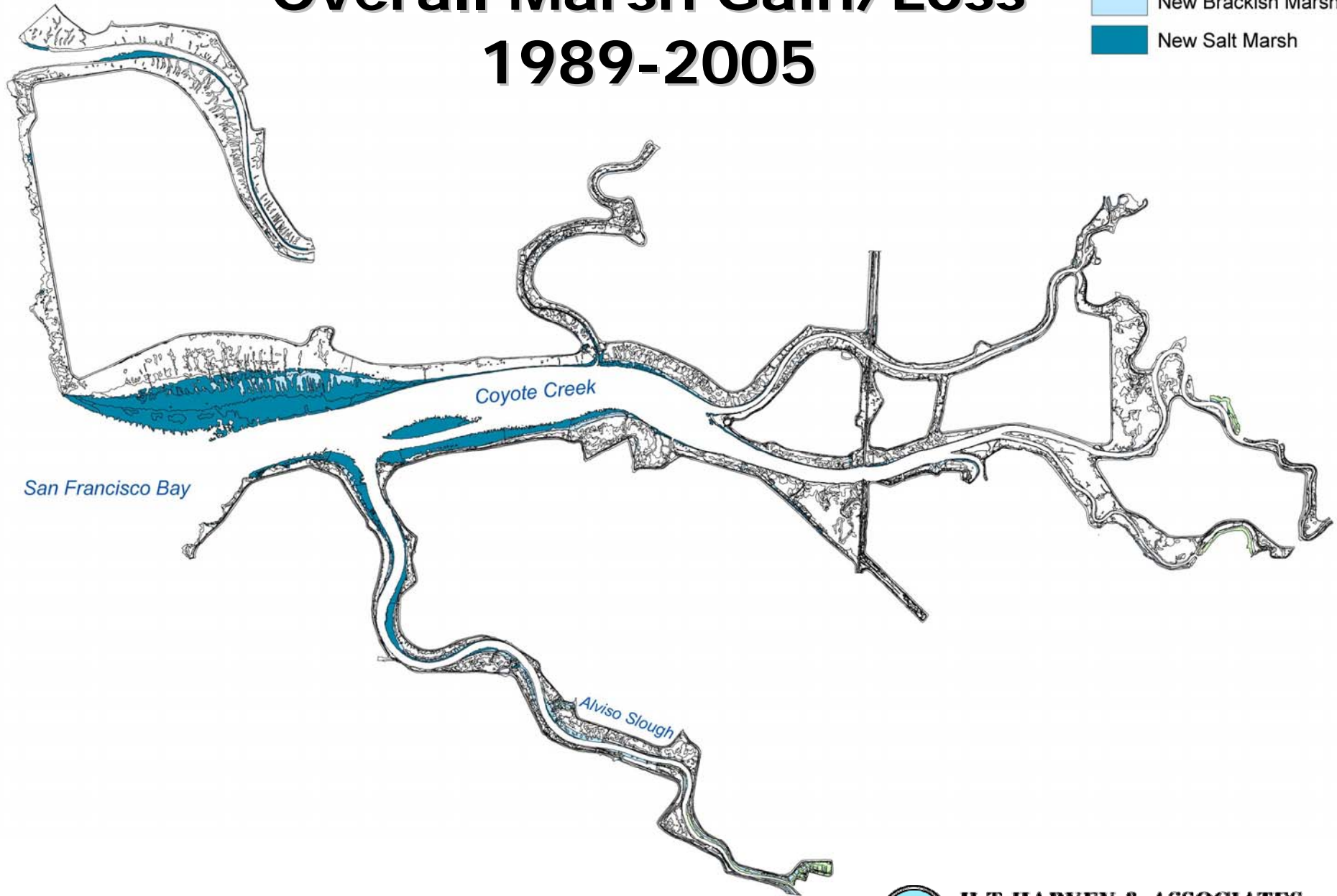
Marsh Gain, 1989-2005



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Overall Marsh Gain/Loss 1989-2005

-  New Fresh Marsh
-  New Brackish Marsh
-  New Salt Marsh



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Marsh Gain in the Study Area

- 1989-2005:
 - 344 acres in Main Study Area (HTH, 2005)
 - 90 acres in Alviso Slough (HTH, 2005)
- 1972-1989:
 - ~200 acres in Main Study Area (RWQCB, 1990)

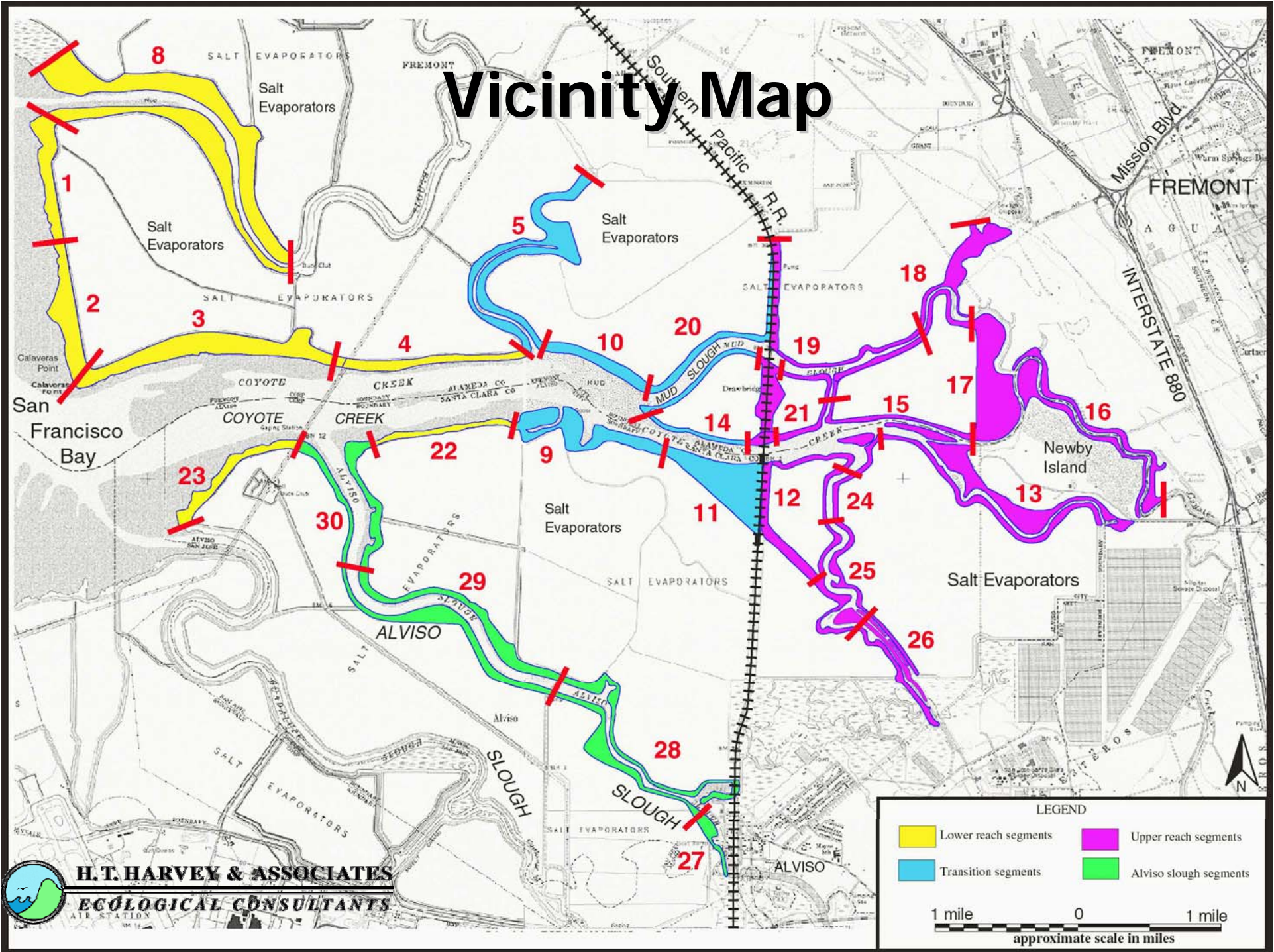


Conclusions Related to the SBSP Restoration Project

- Sediment accretion and new marsh development in the far South Bay
- Dynamic nature of the changes in marsh type



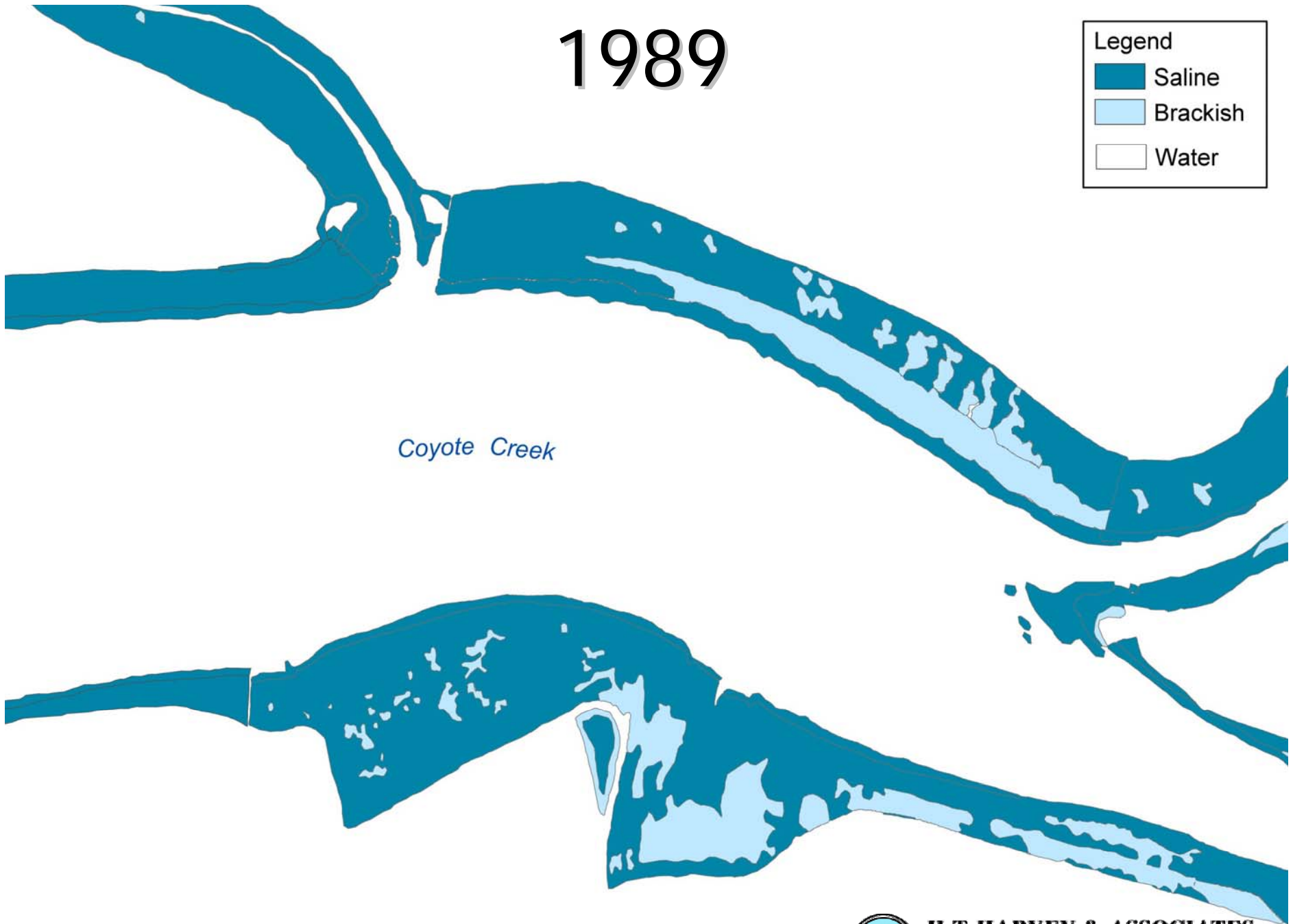
Vicinity Map



1989

Legend

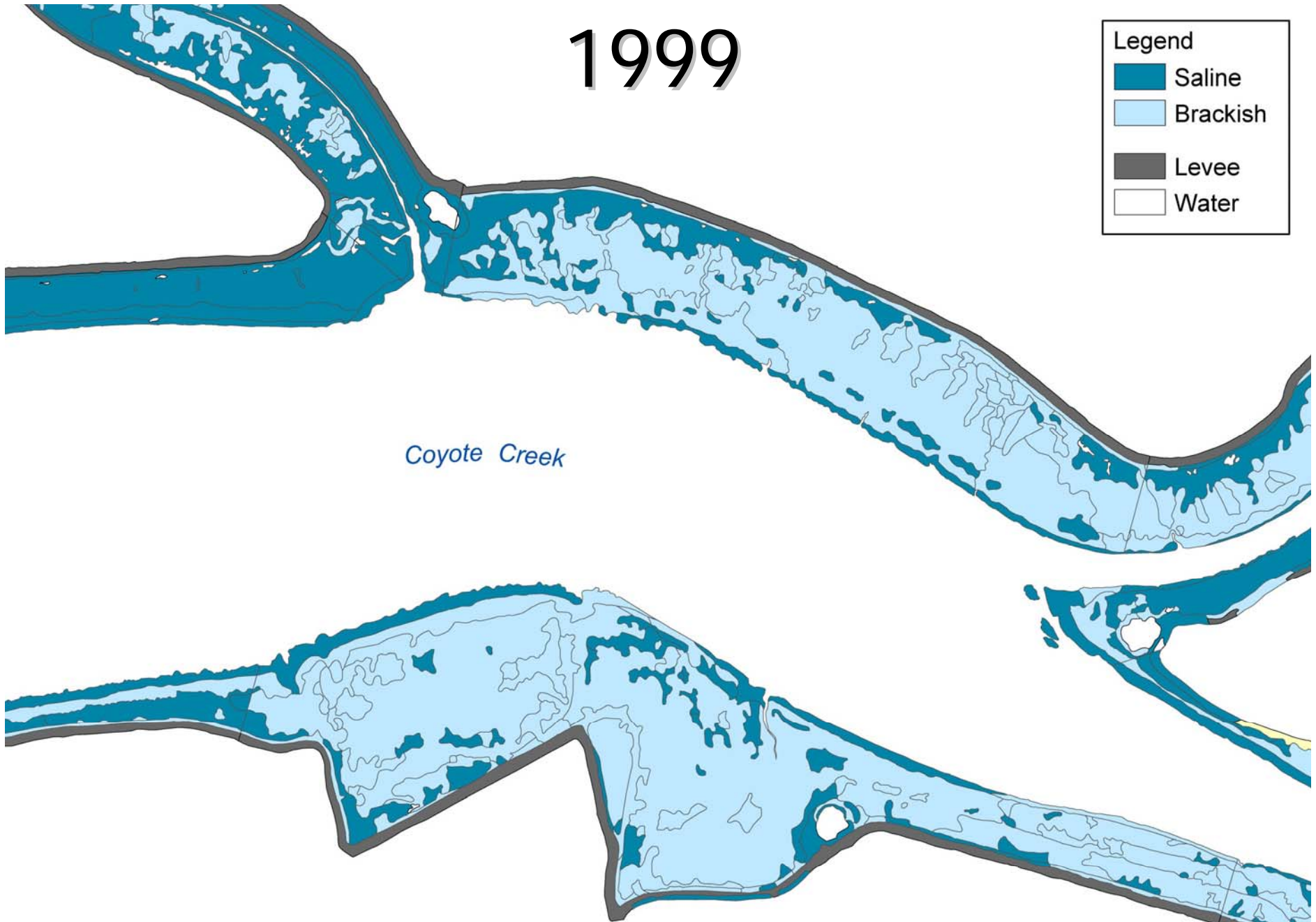
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1999

Legend

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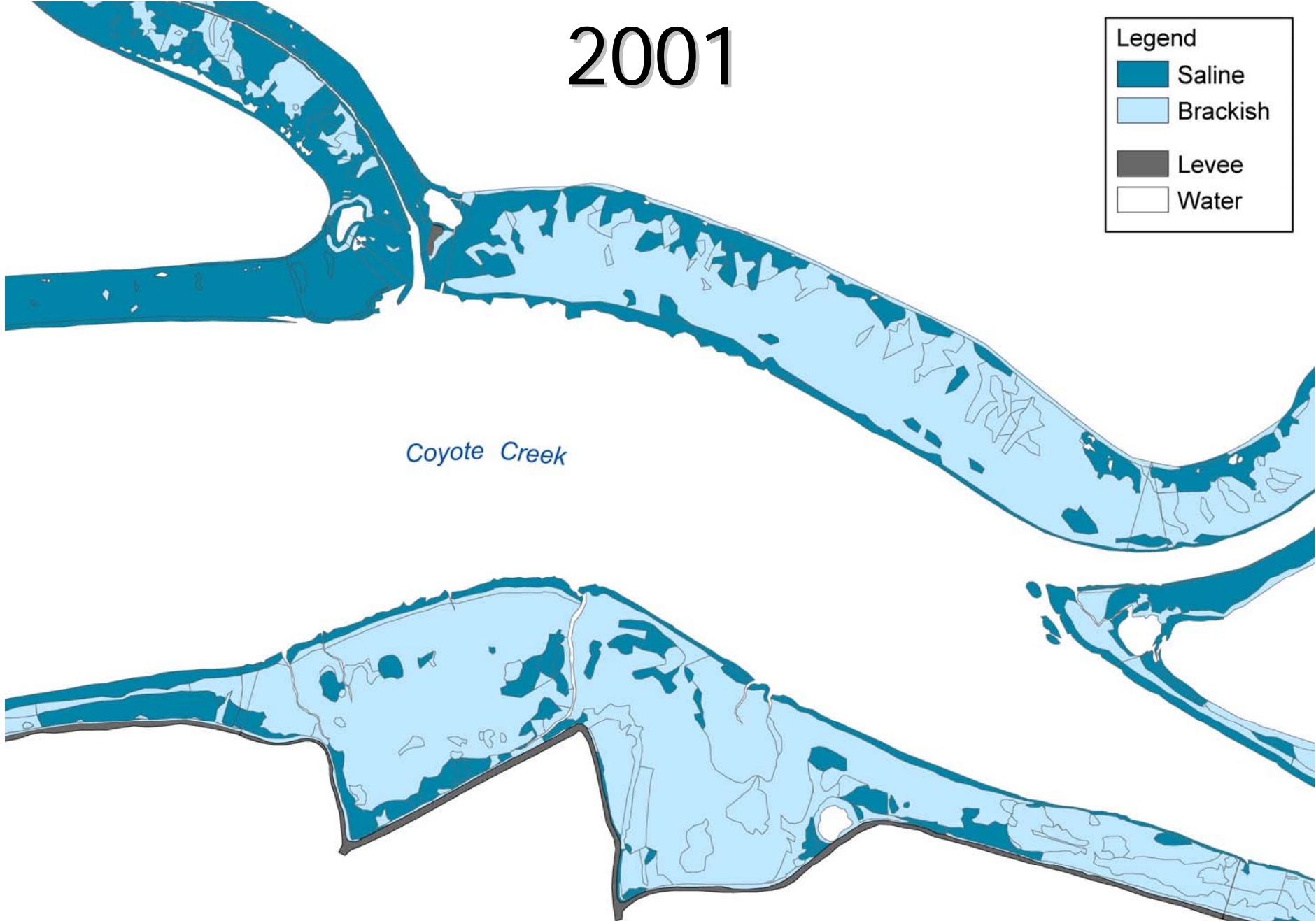


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2001

Legend

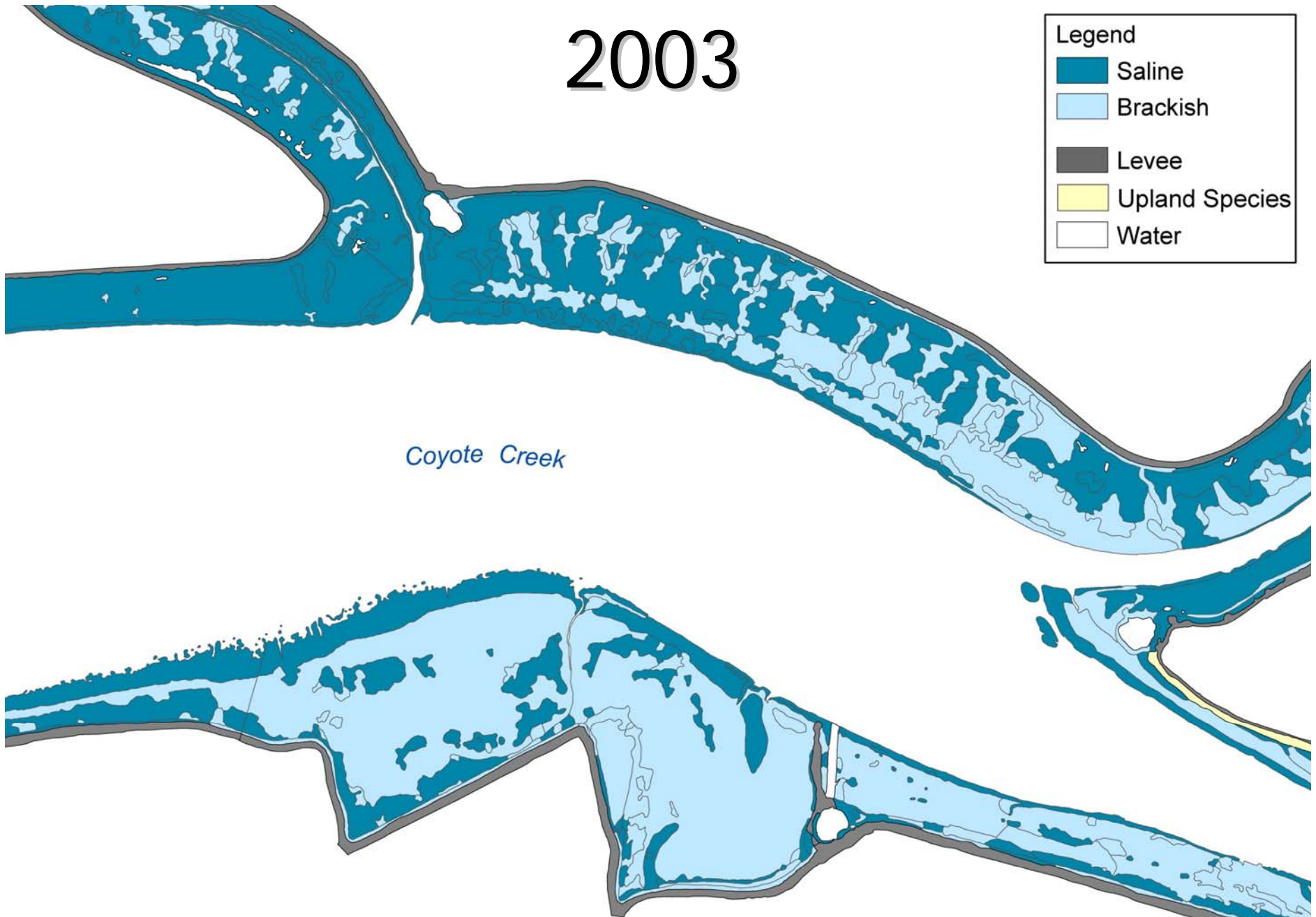
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2003

Legend

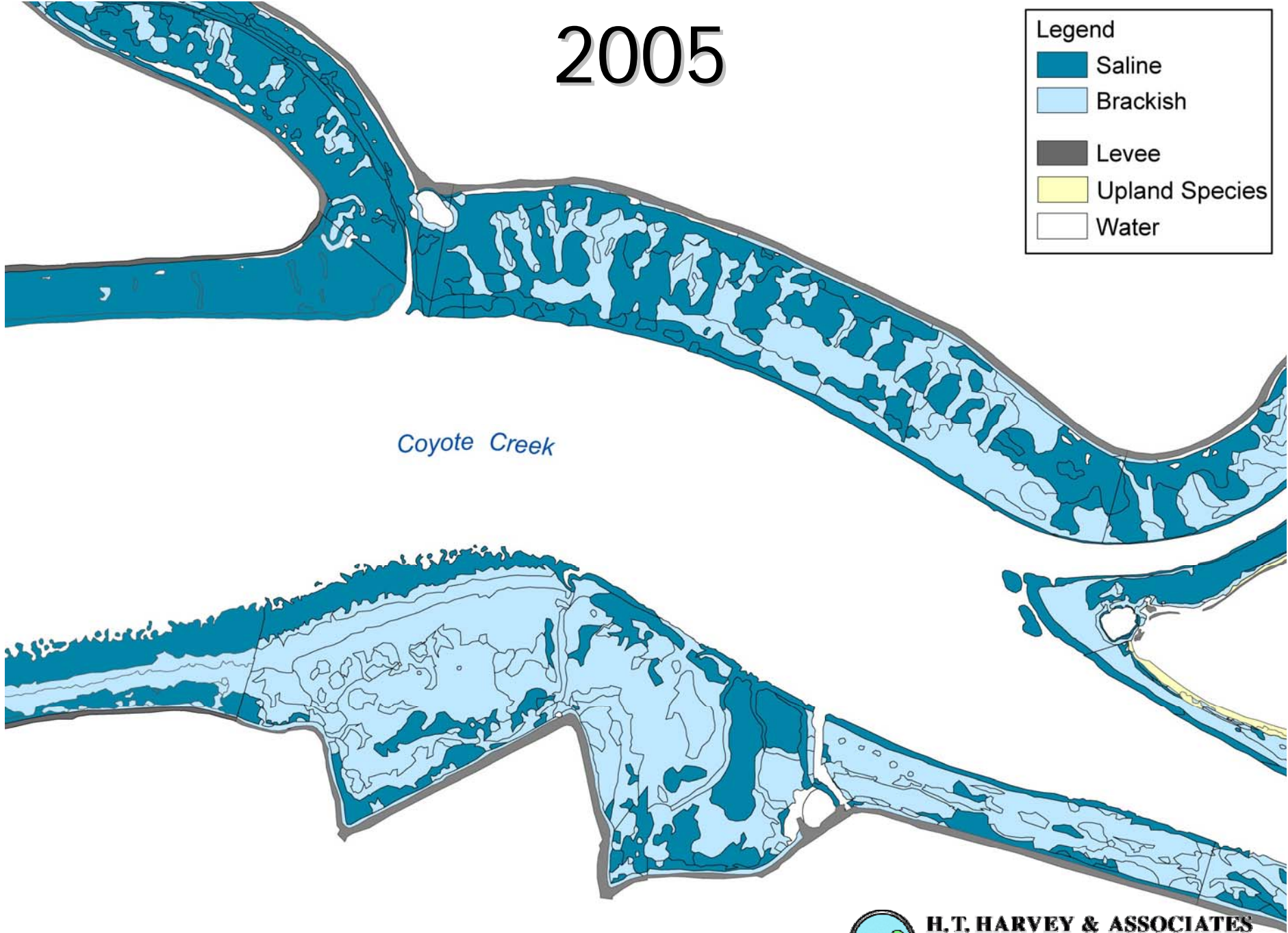
- Saline
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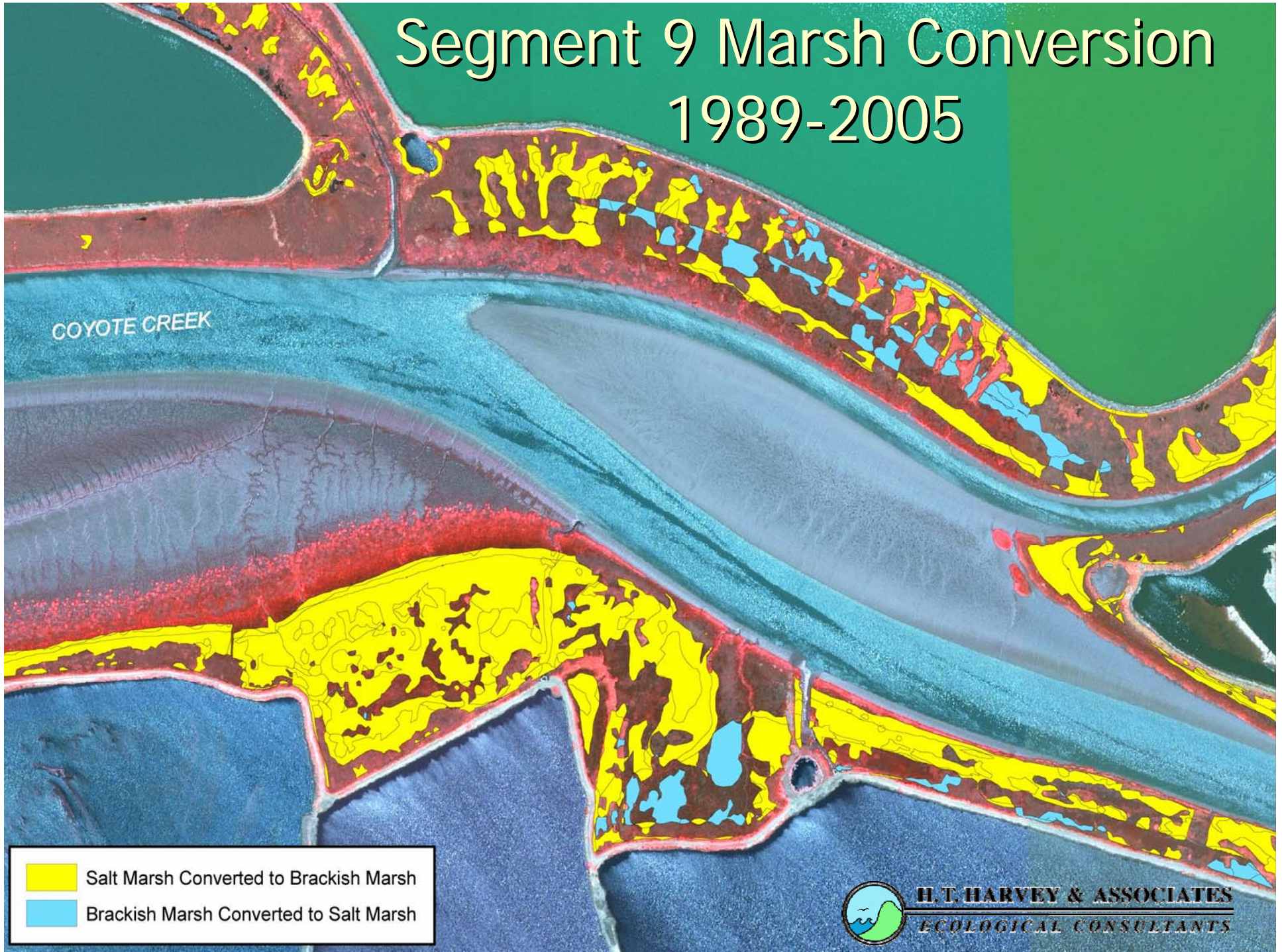
2005

Legend

- Saline
- Brackish
- Levee
- Upland Species
- Water








Segment 9 Marsh Conversion 1989-2005



Overall Marsh Conversion, 1989-2005



-  Salt Marsh Converted to Brackish Marsh
-  Brackish Marsh Converted to Salt Marsh
-  Saline Marsh Converted to Fresh Marsh
-  Brackish Marsh Converted to Fresh Marsh
-  Fresh Marsh Converted to Brackish Marsh

Conclusions

- Significant sediment accretion and new marsh formation in the study area.
- Dynamic plant community, especially in the transitional zones.
- Shifts towards brackish marshes over time related to reductions in salinity due to:
 - freshwater inputs
 - reduced in tidal prism
- As tidal prism is restored we expect:
 - shifts to salt marsh
 - loss of newly formed fringe marshes.

