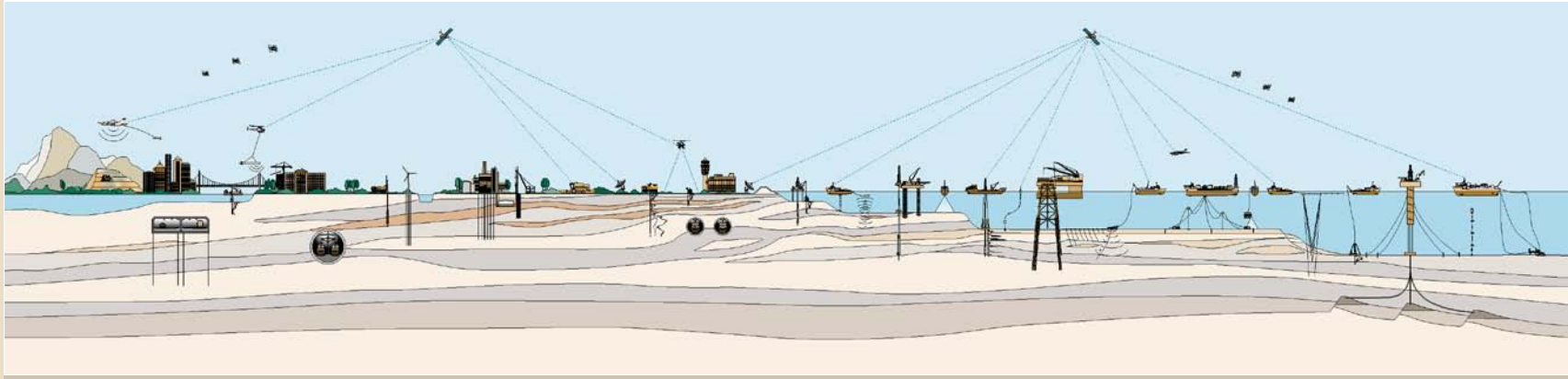
Texas Benthic Phase 2: San Antonio Bay Image Evaluation



Water Clarity

- Some areas of San Antonio Bay look turbid and the turbidity might be obscuring some of the oyster reefs and other benthic features
- This could result in some of these features not being mapped
- However, enhancing the images visually brings out some of the features a bit more, so the information may be there in the data and may actually get delineated and classified through Definiens and CART
- Test segmentations indicate that by adjusting parameters, better polygon delineations of oyster reefs can be achieved

Water Clarity – San Antonio Bay

2007 Ultracam displayed without any stretch
Oyster reefs not easily seen

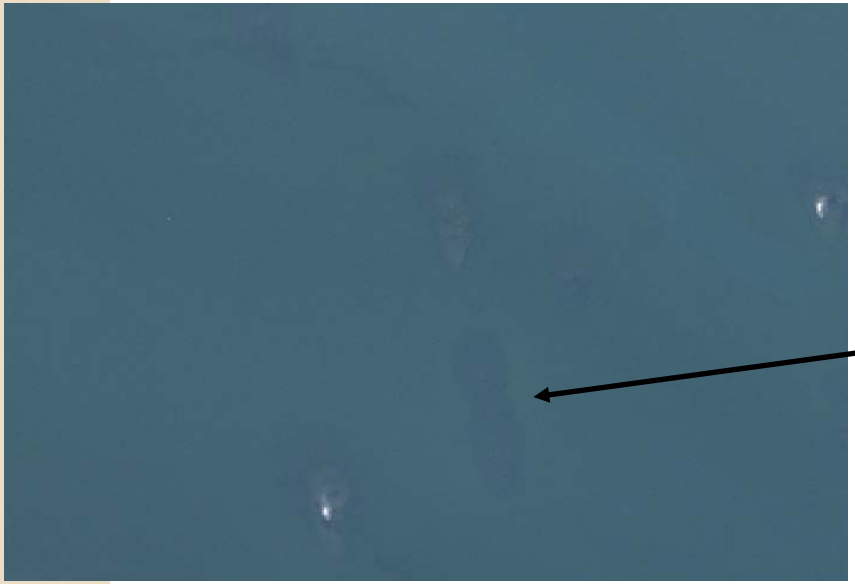
Google Earth
Oyster reefs easily seen

Water Clarity – Mission Lake, San Antonio Bay

2007 Ultracam
Looks very turbid, benthic features (grass, oysters, or algae?) only visible on eastern side

Google Earth
More clear, can see more benthic features throughout the lake

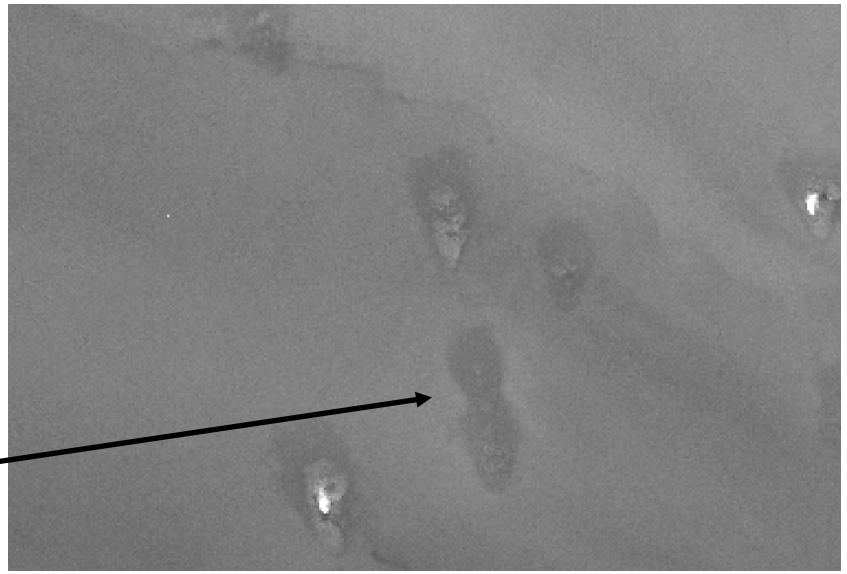
Water Clarity - Oysters



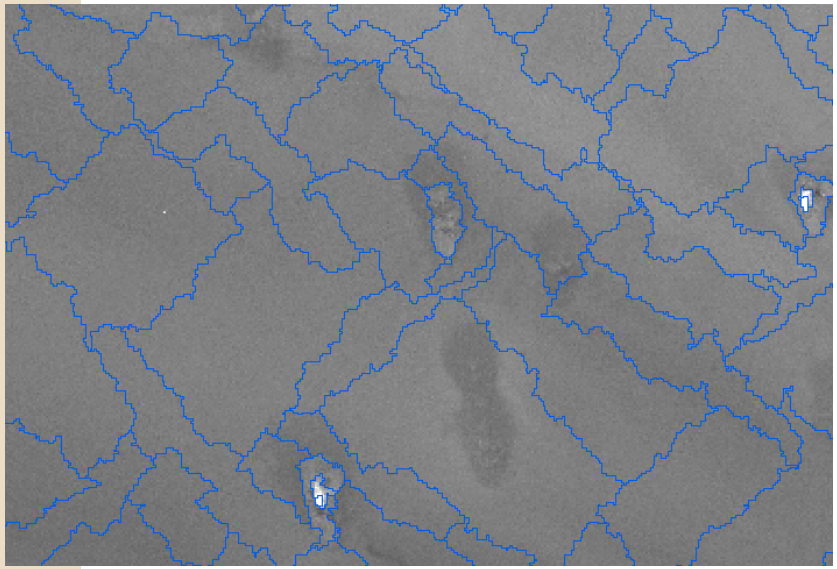
RGB displayed without any stretch

Reefs are barely discernable

Same area showing green band only with a 2 standard deviation stretch

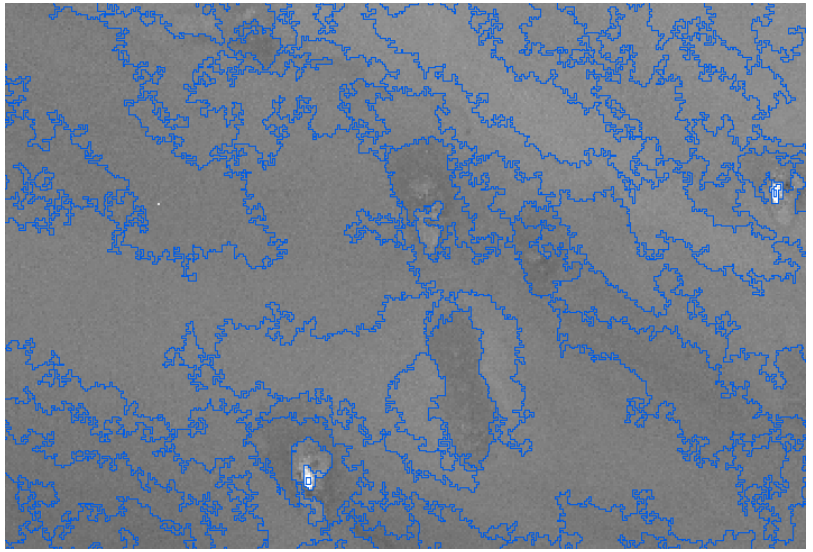


Water Clarity – Oysters, Polygon Tests



Scale 20 polygons created using all 4 bands
Some reef boundaries not captured

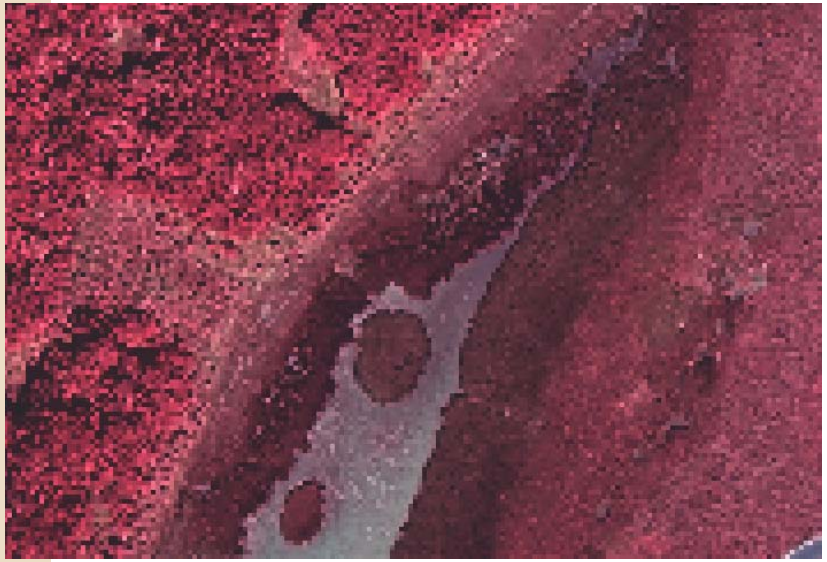
Also scale 20 polygons but only using the green band and slightly different parameters
Reef boundaries better



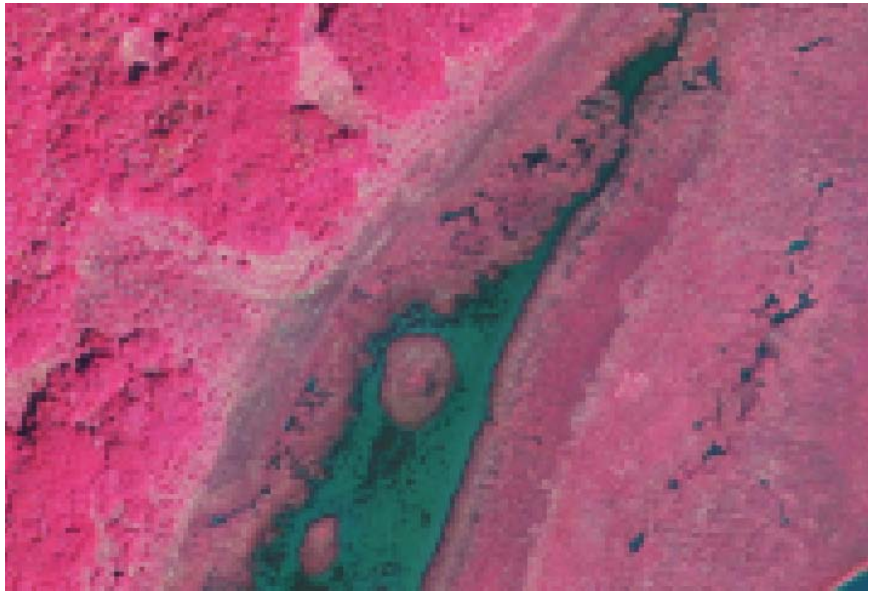
Pixel Speckling Within Vegetation

- Vegetation (upland and emergent) appears speckled in the Ultracam imagery while it is much more smooth and homogenous in the 2004 NAIP
- We don’t think this is going to have a major effect on the segmentations or CART classification

Pixel Speckling Within Vegetation



2007 Ultracam
Light and dark pixels mixed within vegetation

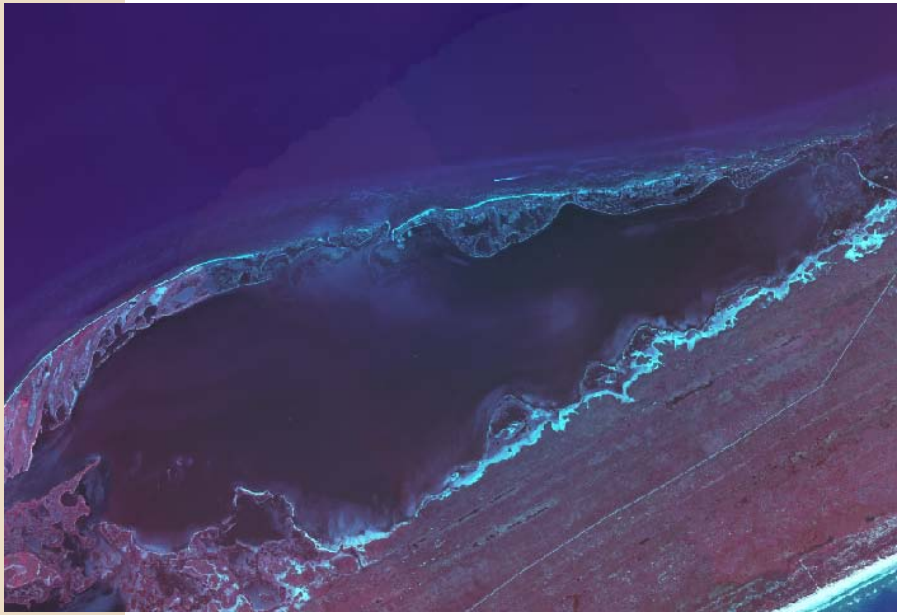


NAIP 2004
Vegetation much more smooth and homogenous

Color Balancing

- Balancing between image frames is bad in a few spots
  - more noticeable in vegetation in CIR
- We don’t think this will negatively affect the segmentations but it may affect the CART classification
- The classification may not be a big problem though since it looks like it may be isolated to only a couple of bad places

Color Balancing



This looks like the worst place

Emergent vegetation different color on each side of the seamline

Seamlines

- Seamlines prevalent due to many image frames
- Will definitely affect segmentations but not necessarily classification as long as CART inputs account for any differences
- This was not a problem in phase 1, though there were fewer seamlines since the flight lines were larger strips rather than many frames
- We don’t think this will be a big problem

Seamlines

As long as features on each side of the seams are classified correctly, dissolving at the end will eliminate the apparent seams.

This shouldn't be a problem in open water areas, but other benthic features may require a little more work on the CART side.

Summary

- For most of these issues we don't think they will result in any significant problems in the polygon segmentations or the CART classifications
  - It may just be a matter of adjusting segmentation and CART inputs
  - Some additional labor may be required for this
- The biggest potential problem may be the water clarity issue.
  - We may miss some features
  - However, tests indicate we can probably get some features that initially look difficult
  - Will likely require additional labor to do so