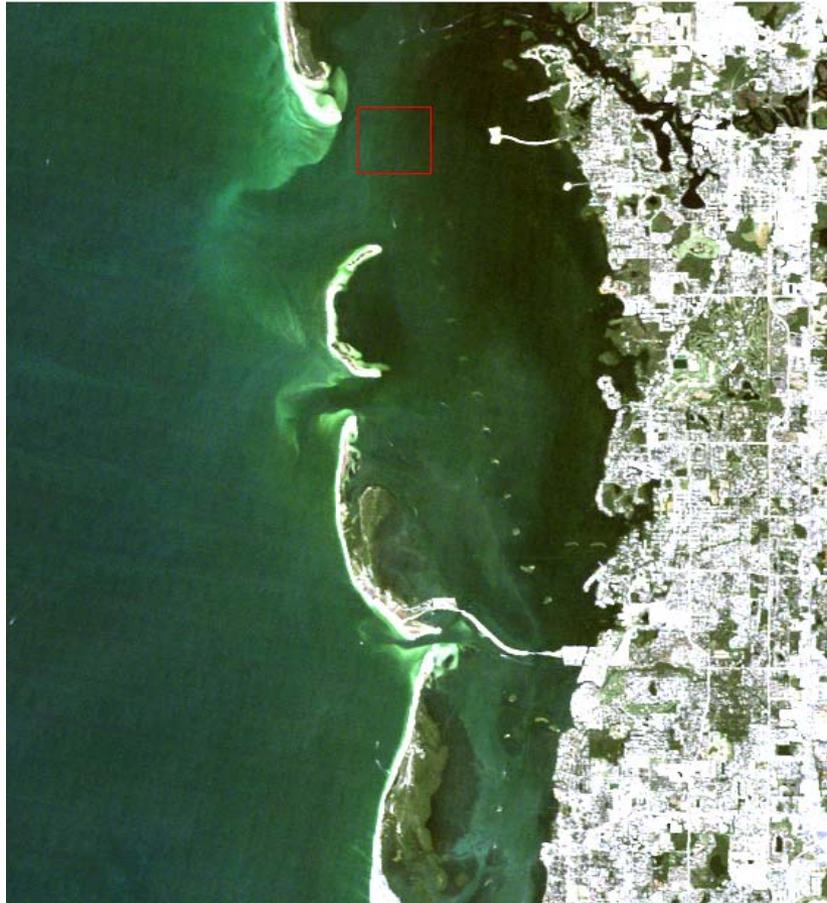


Mapping and Characterization of Seagrass Habitats Using Spacecraft Observations



Landsat 5 TM: 3-2-1, Oct. 01, 2009 at around 10:30 am local time

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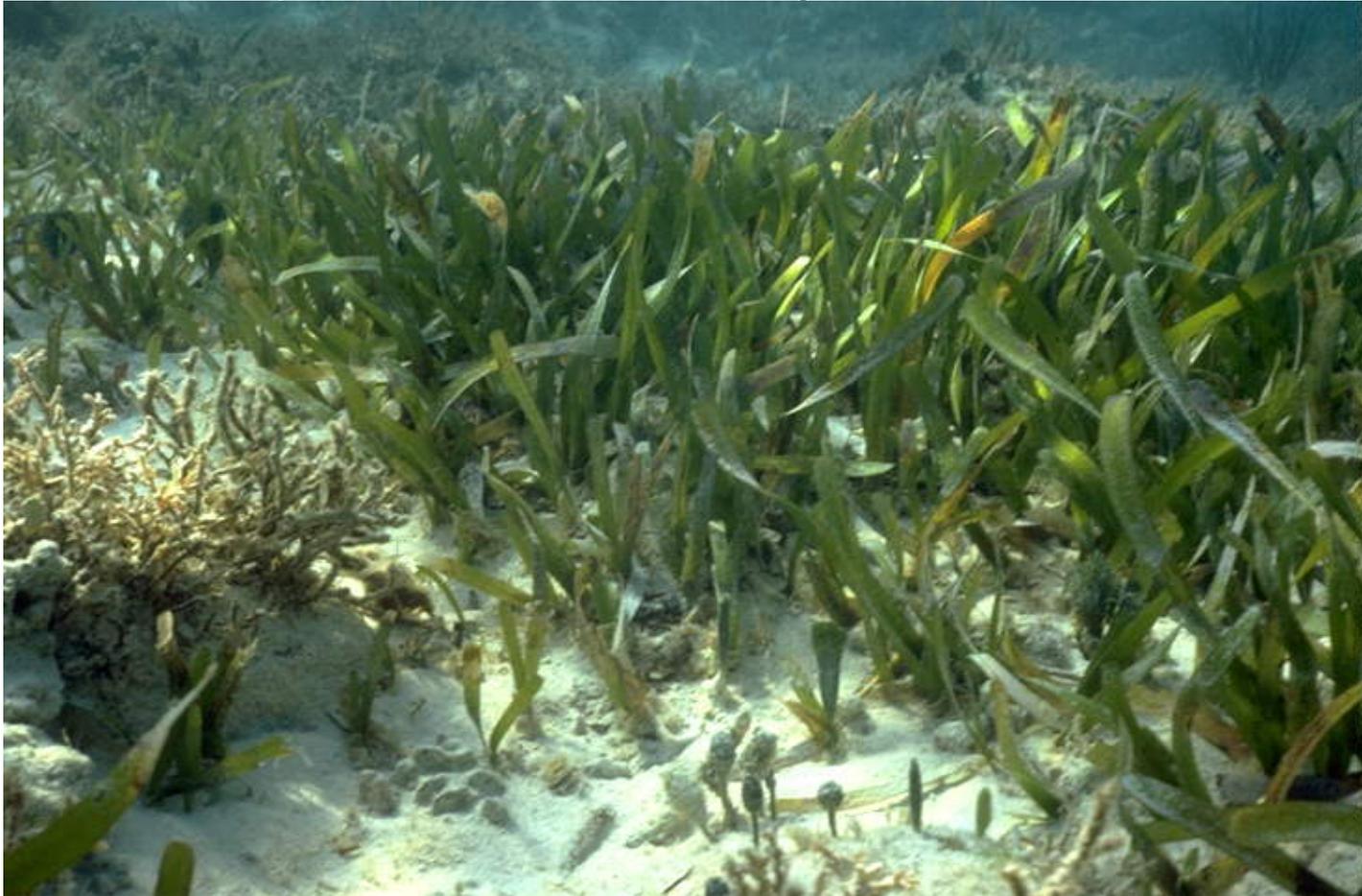
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Seagrass habitats are characteristic features of shallow waters worldwide and provide a variety of ecosystem functions. Thus assessment and monitoring of seagrass habitats are priorities of coastal managers.



Underwater view of seagrass landscape

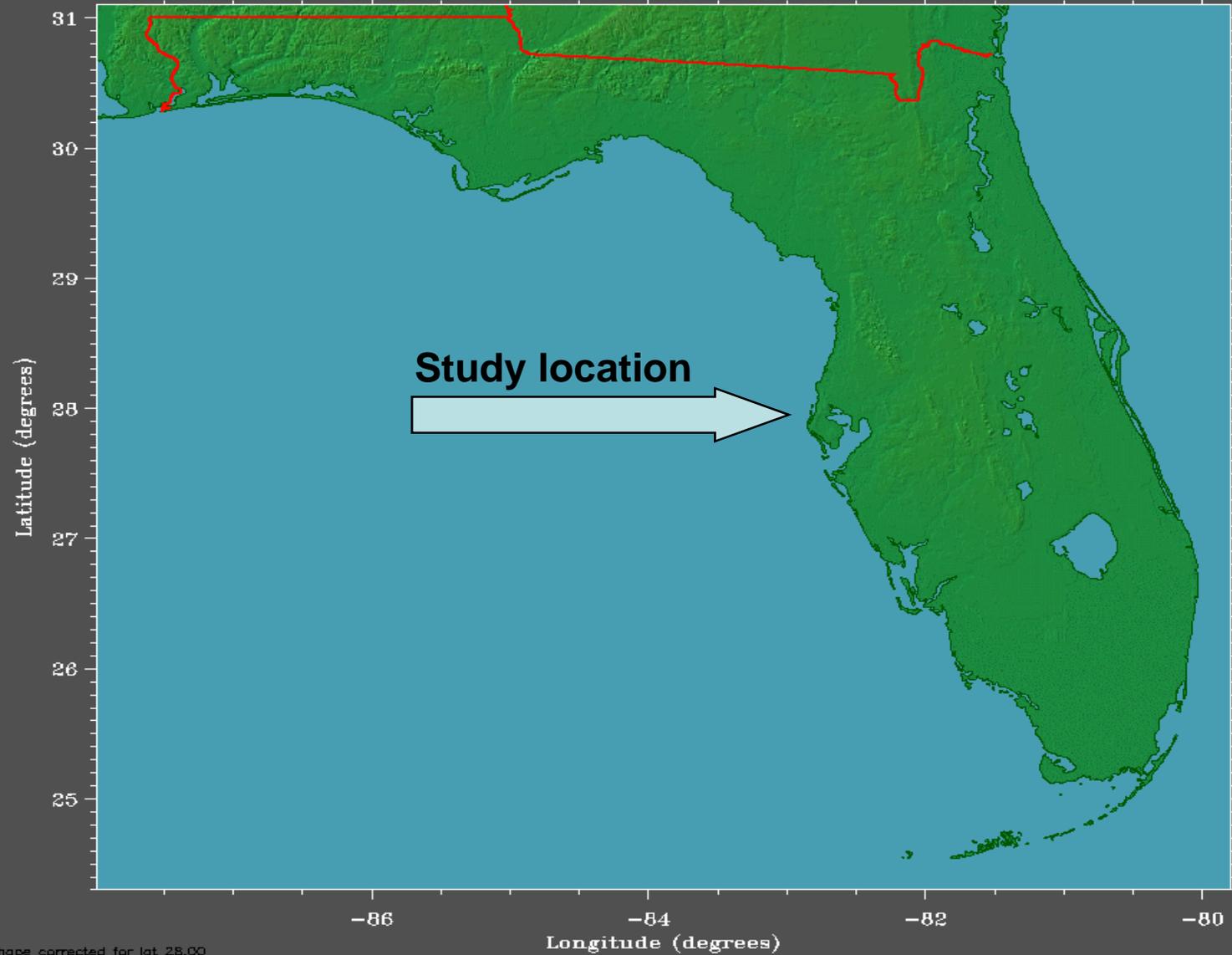
Aerial photography of
seagrass landscapes



We lack the methodology to provide rapid assessment of seagrass distribution and recognize changes in patterns of cover over large spatial scales. The overall goal of this proposal is to evaluate the potential for using NASA products to improve the decision-making concerning the status of seagrass beds.

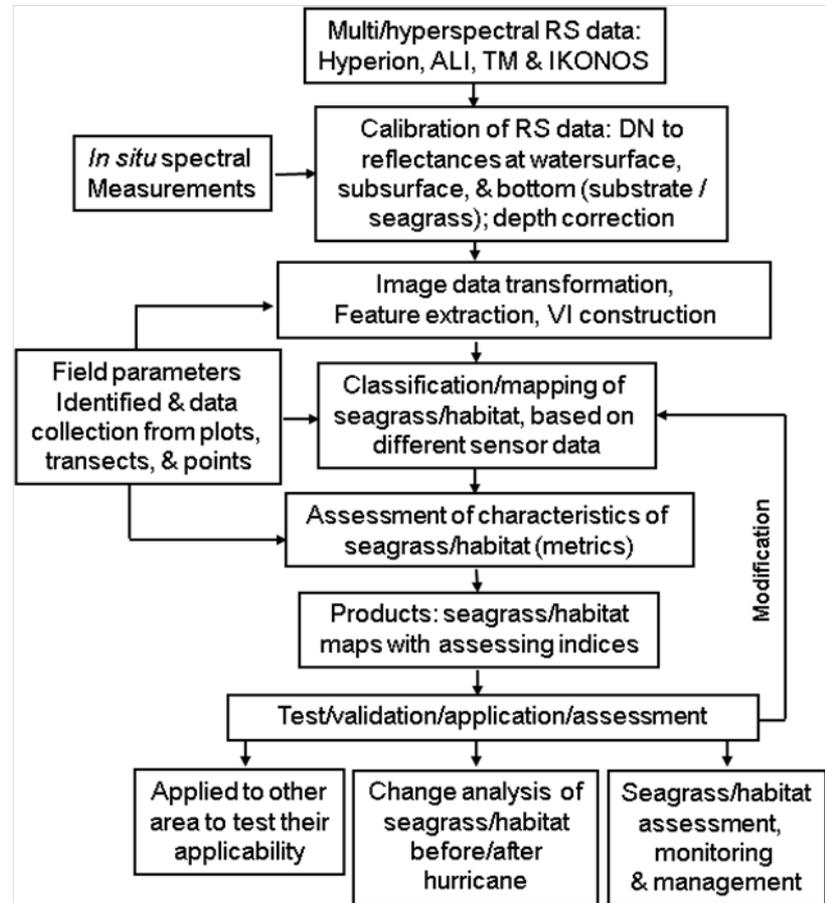
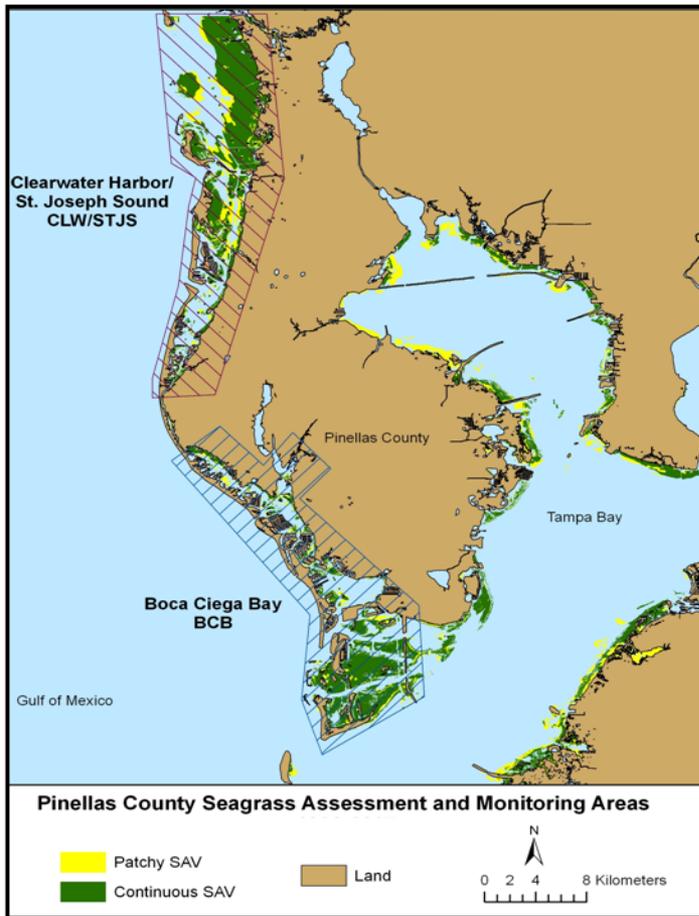
Our study focuses upon the GOMA priority issue: Identification and characterization of Gulf habitats and will:

1. improve and develop tools for Pinellas County, FL, for conducting decision-making activities for seagrass habitat assessment, monitoring and management
2. examine the capability of existing tools and methods for decision-making activities on rapidly mapping and characterizing seagrass habitat using optical remote sensing
3. provide a protocol for application of the techniques developed in the proposed project that could be adapted for use in management of seagrass beds in other parts of the GOM



Shape corrected for lat 28.00

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NASA products to be utilized include:

NASA EO-1 Hyperion and ALI, L1R data products, each three (3) scenes (two scenes covering Clearwater Harbor/ St. Joseph Sound (CLW/STJS), Pinellas County, FL, summer and winter of 2009, and one scene covering Boca Ciega Bay (BCB), Pinellas County, FL, summer of 2010);

NASA Landsat5 TM, L1 data products, nine (9) scenes (three scenes covering the same areas (CLW/STJS and BCB) and acquired in the same seasons as EO-1 Hyperion data; other scenes collected from NASA archive data for change analysis of seagrass habitat before/after a major hurricane event (e.g. Fall 2004 Hurricane events).

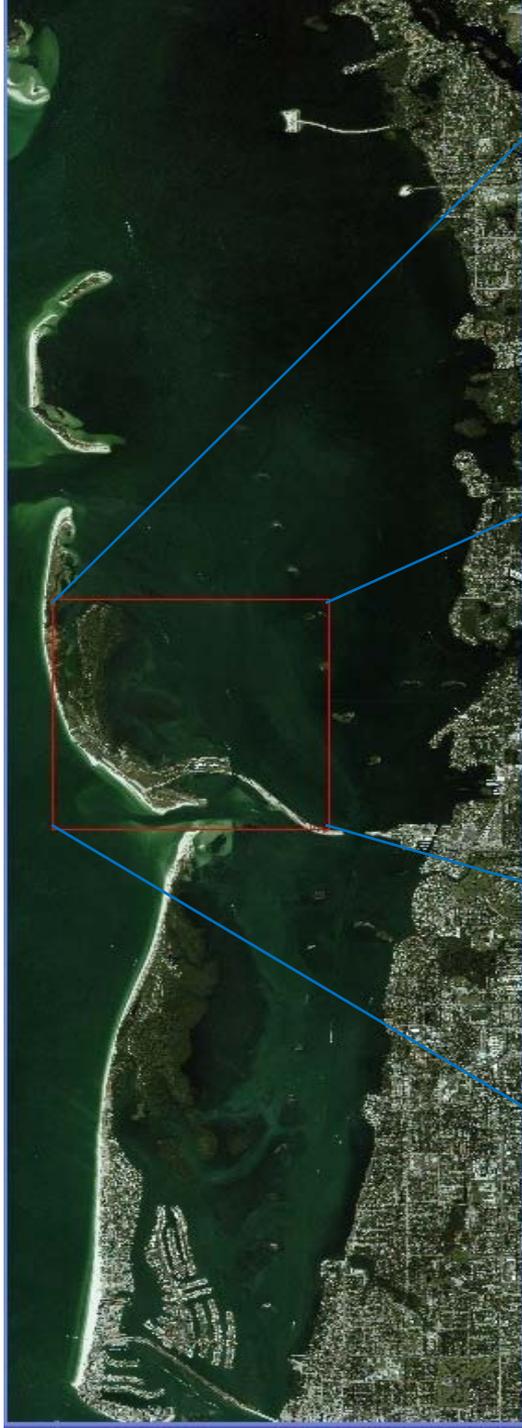
NASA Terra/Aqua MODIS MO(Y)D02/03 data products for selecting optimal Landsat TM Archive data.

Also will include:

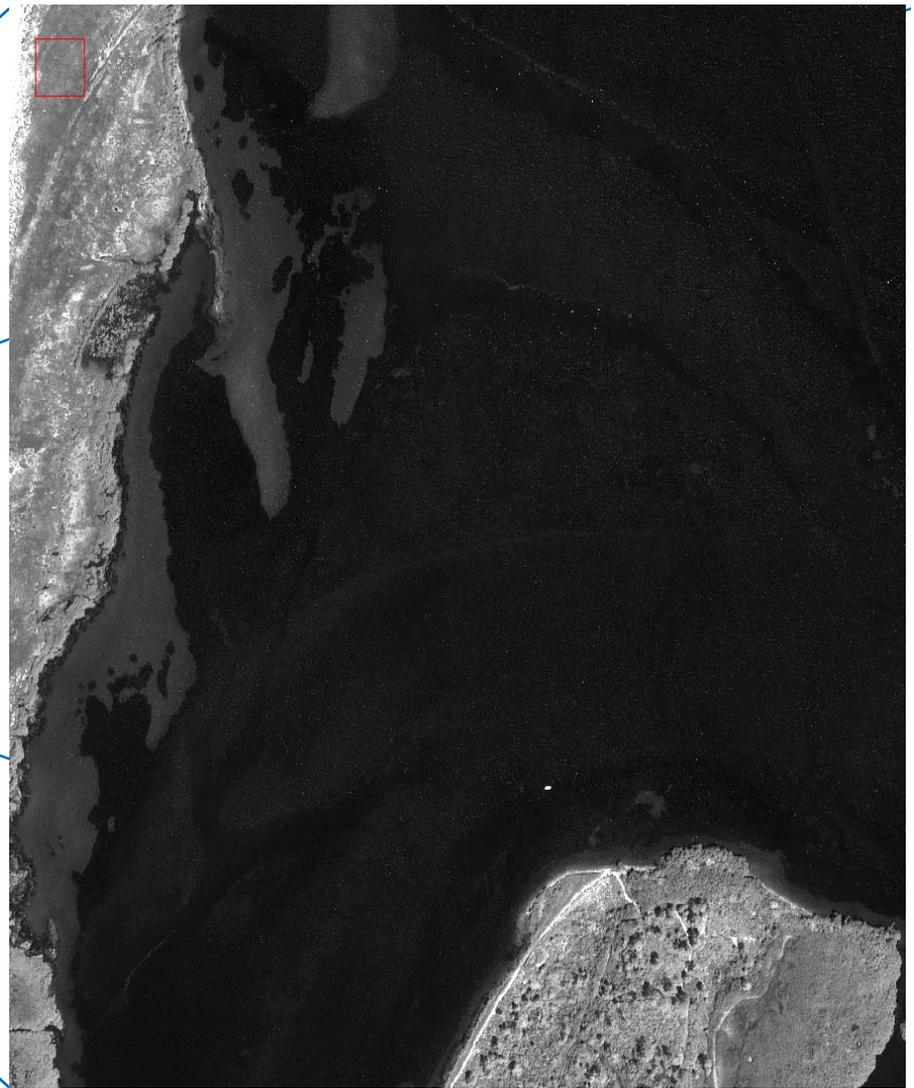
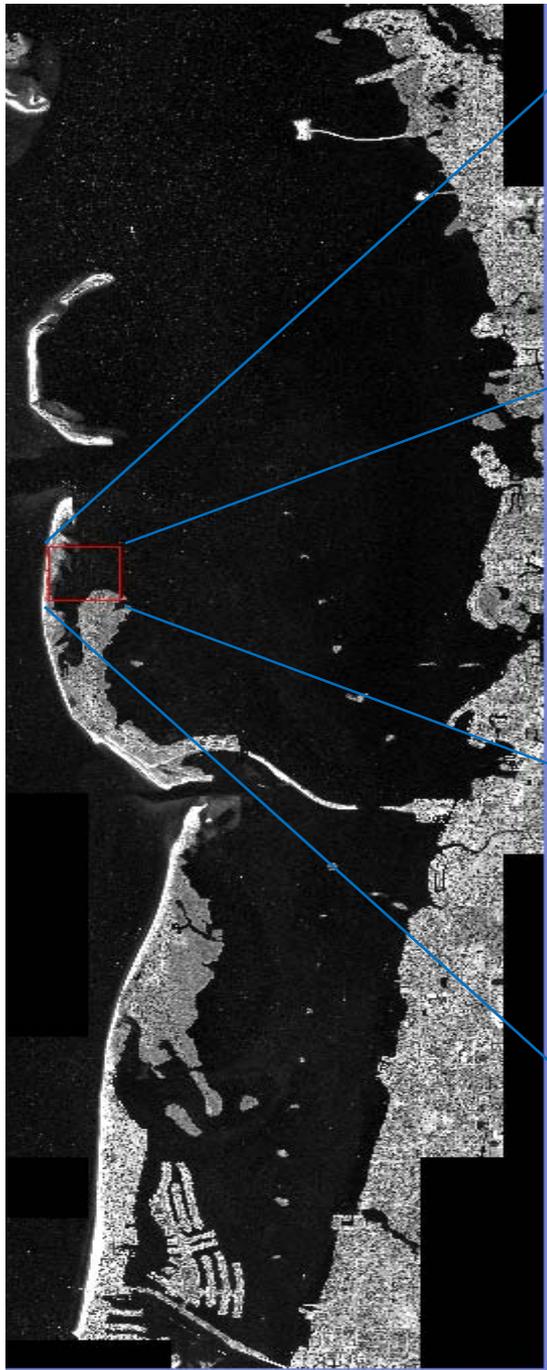
High resolution IKONOS satellite imagery (GeoEye, Inc.), three (3) scenes, covering CLW/STJS and BCB study/test areas in the same seasons and years as for EO-1 Hyperion and ALI data.

We will use commercial satellite data, high spatial resolution IKONOS, to assess the capability of NASA moderate-resolution EO-1 and Landsat data for decision-making activities. We will also apply NASA research results, such as satellite image data calibration models from radiance to reflectance at water surface, subsurface and bottom/substrate.

Examples of images collected to date:



IKONOS-MS:3-2-1
Oct. 1, 2009
At 16:27 GMT



IKONOS-Pan:1
Oct. 1, 2009
At 16:27 GMT

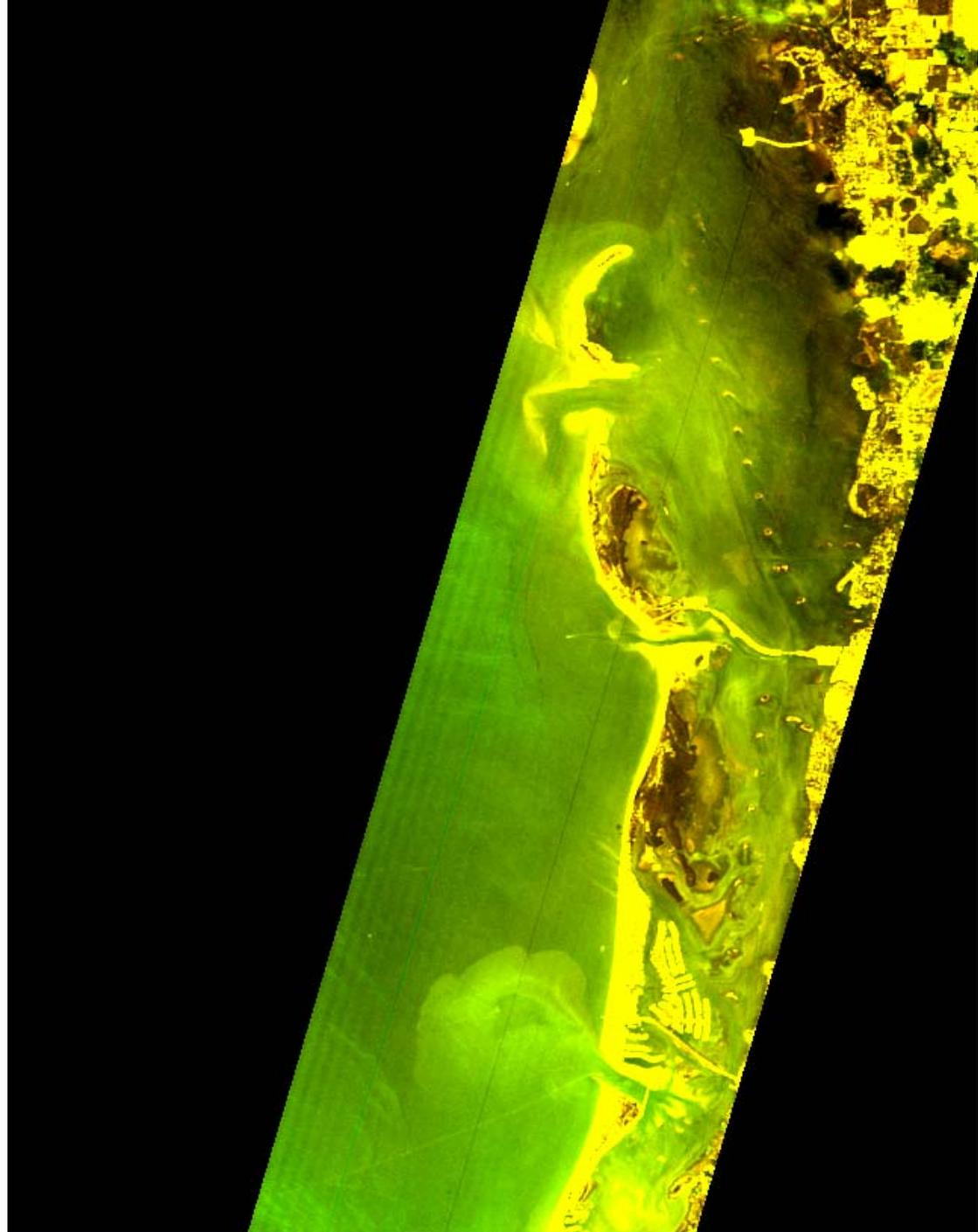
Landsat 5 TM: 3-2-1, Oct.
01, 2009 at around 10:30 am
local time





EO-1/ALI:4-3-1, Oct.
08, 2009, at around 10:30 am
local time

EO-1/Hyperion: R-G-B,
Oct. 08, 2009 at around
10:30am local time



ASD Spectral Measurements Taken from Different Cover Percentage of Seagrass with Different Bottom Types

