Old Tampa Bay
Integrated Model Development Project

Task 1 - Assist TBEP and the DISTRICT in review and selection of preliminary management action scenarios that are directed at improving the Old Tampa Bay ecosystem

Meeting #2
Draft Report Summary and Review

20 January 2012

Old Tampa Bay
Integrated Model Development Project

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INTERA

PROJECT OBJECTIVE

- To identify and evaluate a suite of management scenarios to address the Old Tampa Bay issues using integrated modeling tools

UNDERSTANDING & APPROACH

- Integrated set of models
  - response of key ecological attributes and stressors to various scenarios
  - spatial and temporal resolution
  - *defensible*, quantitative prediction
  - assessment of the net ecological changes expected due to the scenarios examined

UNDERSTANDING & APPROACH

TASK 1
Review & Select Preliminary Scenarios

TASK 2
Data Review & Adequacy Assessment

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"Go-No Go" Decision Point

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TASK 3
Integrated Model Plan

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TASK 4
Model Formulation & Testing

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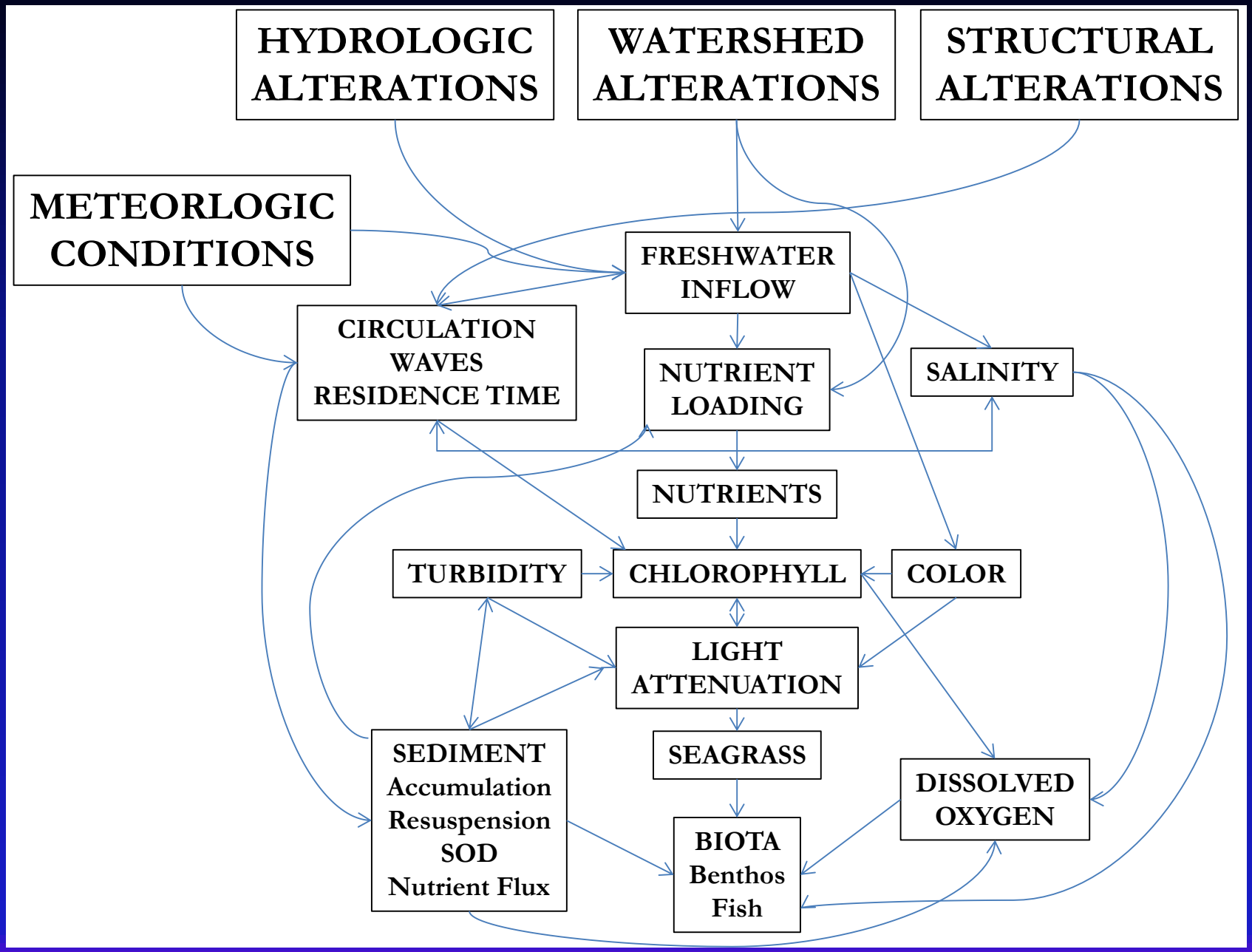
TASK 5
Model Applications

TASK 1

- Old Tampa Bay Management Action Scenario Report
  - Management Actions
    - Prioritized
  - Key ecological attributes

• Old Tampa Bay Conceptual Model



Key Ecological Attributes

- Freshwater inflow
- Nutrient loading
- Salinity
- Residence time/water age
- Residual circulation patterns
- Particle tracking and depositional rates
- Water column
  - Chlorophyll a
  - DO
  - Light attenuation
  - TN
  - DIN
  - CDOM
  - Phytoplankton assemblages

Key Ecological Attributes

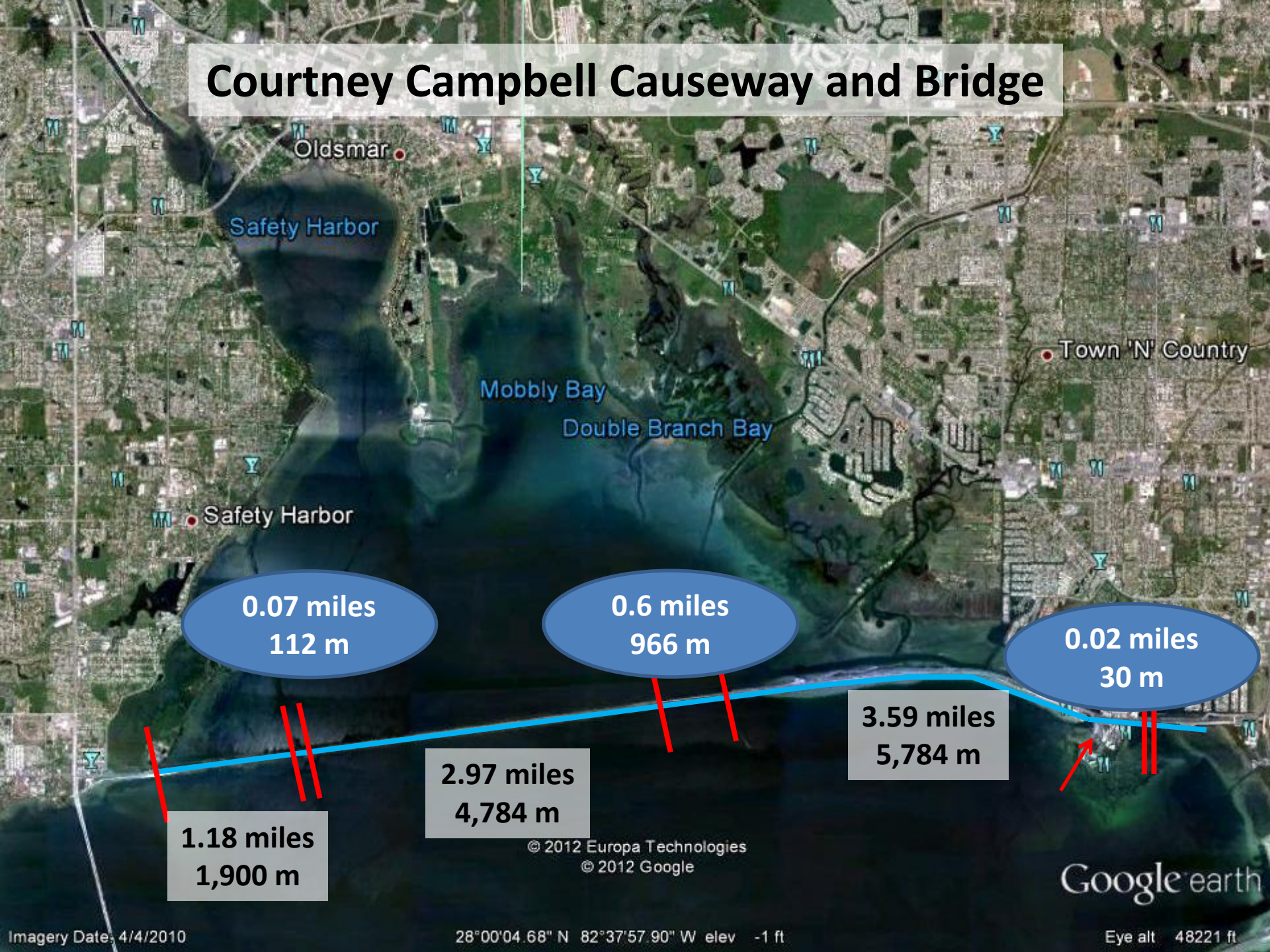
- Sediment
  - Chlorophyll a
  - SOD
  - H_2S
  - Organic carbon content
- Seagrass
  - Area with adequate light quality attenuation
  - Depth distribution of this area
- Benthic and fish habitat suitability

- **Old Tampa Bay Management Actions**

Redirect all ambient freshwater discharges from the Lake Tarpon Outfall Canal to outside the watershed – Priority A

- **Old Tampa Bay Management Actions**

Modify the Courtney Campbell Causeway; modifications may include simple addition of culverts or a fully elevated bridge span - Priority A


Courtney Campbell Causeway and Bridge
Oldsmar
Safety Harbor
Mobbly Bay
Double Branch Bay
Town 'N' Country
Safety Harbor
0.07 miles
112 m
0.6 miles
966 m
0.02 miles
30 m
3.59 miles
5,784 m
2.97 miles
4,784 m
1.18 miles
1,900 m
© 2012 Europa Technologies
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Google earth
Imagery Date: 4/4/2010
28°00'04.68" N 82°37'57.90" W elev -1 ft
Eye alt 48221 ft

- **Old Tampa Bay Management Actions**

Redirect all discharges from the City of Clearwater East AWWTP from OTB to reuse within the City's jurisdiction according to the current distribution pattern - Priority A

- **Old Tampa Bay Management Actions**

Watershed load reductions

Fertilizer ordinances, alum treatment, LID - Priority A

- **Old Tampa Bay Management Actions**

Modify discharges from minor tidal tributaries, consisting of complete, sustained opening of Channel A and Channel G salinity barriers and modification of the Channel 5 salinity barrier in the Roosevelt Basin - Priority B

- **Old Tampa Bay Management Actions**

Dredging and removal of the central Safety Harbor muck layer- Priority B

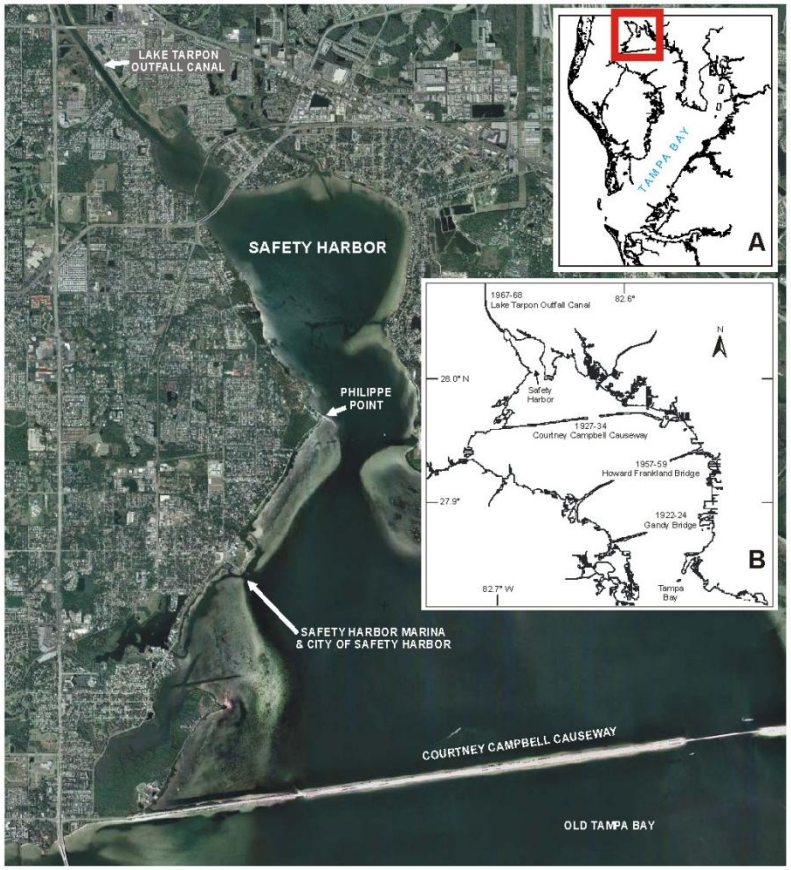

Figure 2. Safety Harbor study area in relation to the Tampa Bay estuary (inset A) and Old Tampa Bay (inset B). Dates of construction for Old Tampa Bay bridges and the Lake Tarpon Outfall Canal are indicated in inset B.

- **Old Tampa Bay Management Actions**

Modify the Courtney Campbell Causeway, as recommended in 2) above, in concert with modifications to the Howard Frankland and Gandy bridges (e.g. addition of culverts along western causeway approaches) - Priority C

- **Old Tampa Bay Management Actions**

Redirect all/some discharge from the City of Clearwater East AWWTP to the vicinity of Safety Harbor to offset removal of the Lake Tarpon Outfall Canal discharge - Priority C

- **Old Tampa Bay Management Actions**

Establish a regional stormwater treatment facility- Priority C

- **Old Tampa Bay Management Actions**

Prescribe the 1998 Lake Tarpon Management Plan recommended operating schedule to the Lake Tarpon Outfall Canal discharges. (i.e., manage lake between ~3.4 ft and 1.8 ft) - Priority C

- **Old Tampa Bay Management Actions**

Enhance/restore oyster reefs in the bay proper along the fringing mangrove extents in the vicinity of Channel A and Channel G, Mobbly Bayou/Booth Point, Lake Tarpon Outfall Canal, Allen's Creek, and Feather Sound regions - Priority C

Ranking of Management Actions by Cost (in millions)

RELATIVELY FIXED	
Channels A, G, and 5	>$0.35
Manage Lake Tarpon per operating schedule	$3.3
Redirect Lake Tarpon Outfall Canal discharge	>$3.7
Redirect Clearwater East outfall to LT Canal	$5.2-8.9
Safety Harbor dredging	$3.2-13.9
SCALE-DEPENDENT	
Enhance/restore oyster reefs	$1-1.7/100 acres
Three bridges modifications (300' culverts each)	$3/bridge
Modify Courtney Campbell (300-1,320')	$3-19.8
Redirect all Clearwater East discharge to reuse	$5/service area
Watershed Load Reduction	$5/2400 acres
Regional stormwater treatment facility	$5/2400 acres