



Tampa Bay Nitrogen Management Program

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Tampa Bay Estuary Program

September 2014



Tampa Bay in the 1970s

“The Kitchen” (Hillsborough Bay near Gibsonton)



Photo by JOR Johansson



Archie Creek

Troubled Waters

- Half of Tampa Bay seagrasses lost by 1982
- Half of Tampa Bay's natural shoreline altered
- 40% of tidal marshes destroyed
- White ibis populations plummeted by 70%
- Visibility reduced to 2 feet in Hillsborough Bay
- Fish kills common



What caused the Bay's decline?

- Poorly treated sewage
- Unrestricted dredging and filling
- Untreated stormwater runoff and industrial discharges

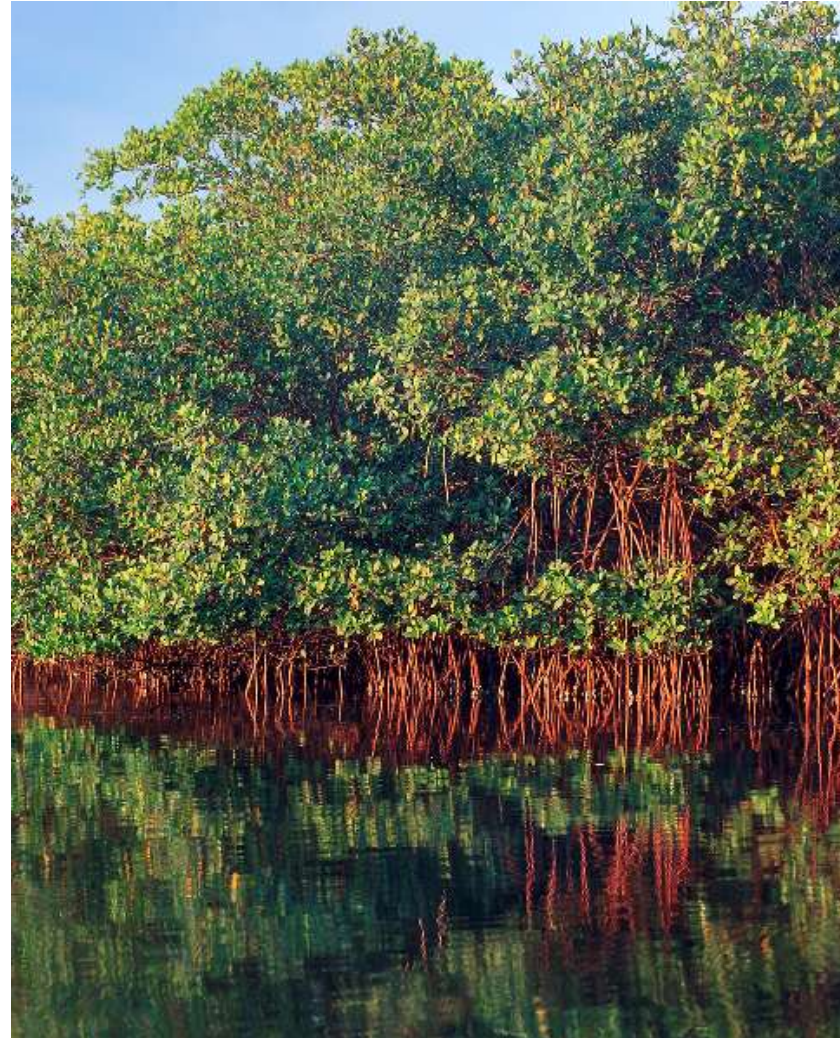


Common pollutant:
NITROGEN



Restoring Tampa Bay

- Citizen action
- Agency on Bay Management
early 1980s
- SWFWMD SWIM
late 1980s
- TBEP
1990



Partners vital to the Bay's recovery



Tampa Bay Seagrass Restoration Goal

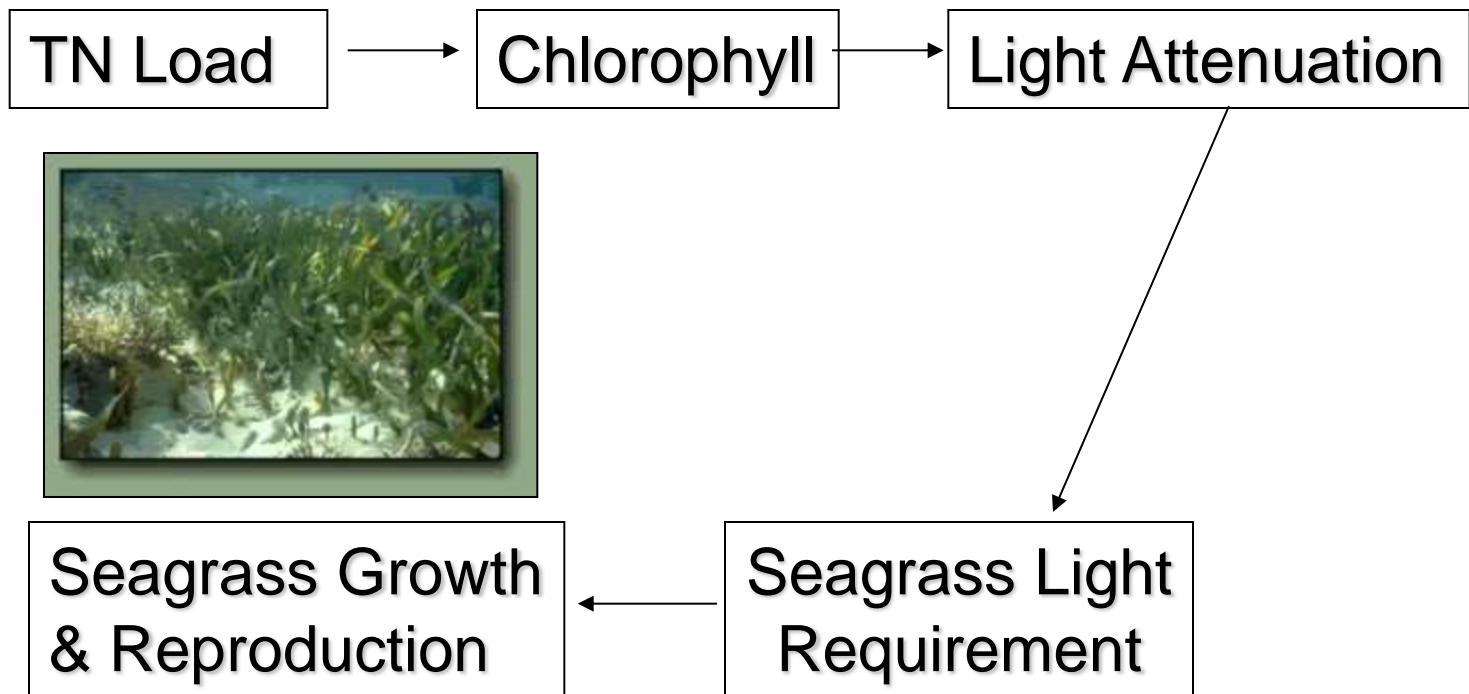


Difference between 1950 and 1990
seagrass cover

**Seagrass
Restoration Goal:
Restore seagrass
acreage to that
observed in ~1950.**



Tampa Bay Nitrogen Management Strategy Paradigm



The beginning of Tampa Bay's Collaborative Approach

- Public sector realized that nitrogen management goals were unattainable without private sector help.
- Private sector invited to participate with the public sector in the voluntary Nitrogen Management Consortium.
- Each partner contributed to nitrogen management goal as they were able- no requirements or allocations

Tampa Bay Public/Private Partnership

Tampa Bay Nitrogen Management Consortium

Formed in 1996

Partnership of:

- local governments,
- regulatory agency participants,
- local phosphate companies,
- agricultural interests and
- electric utilities



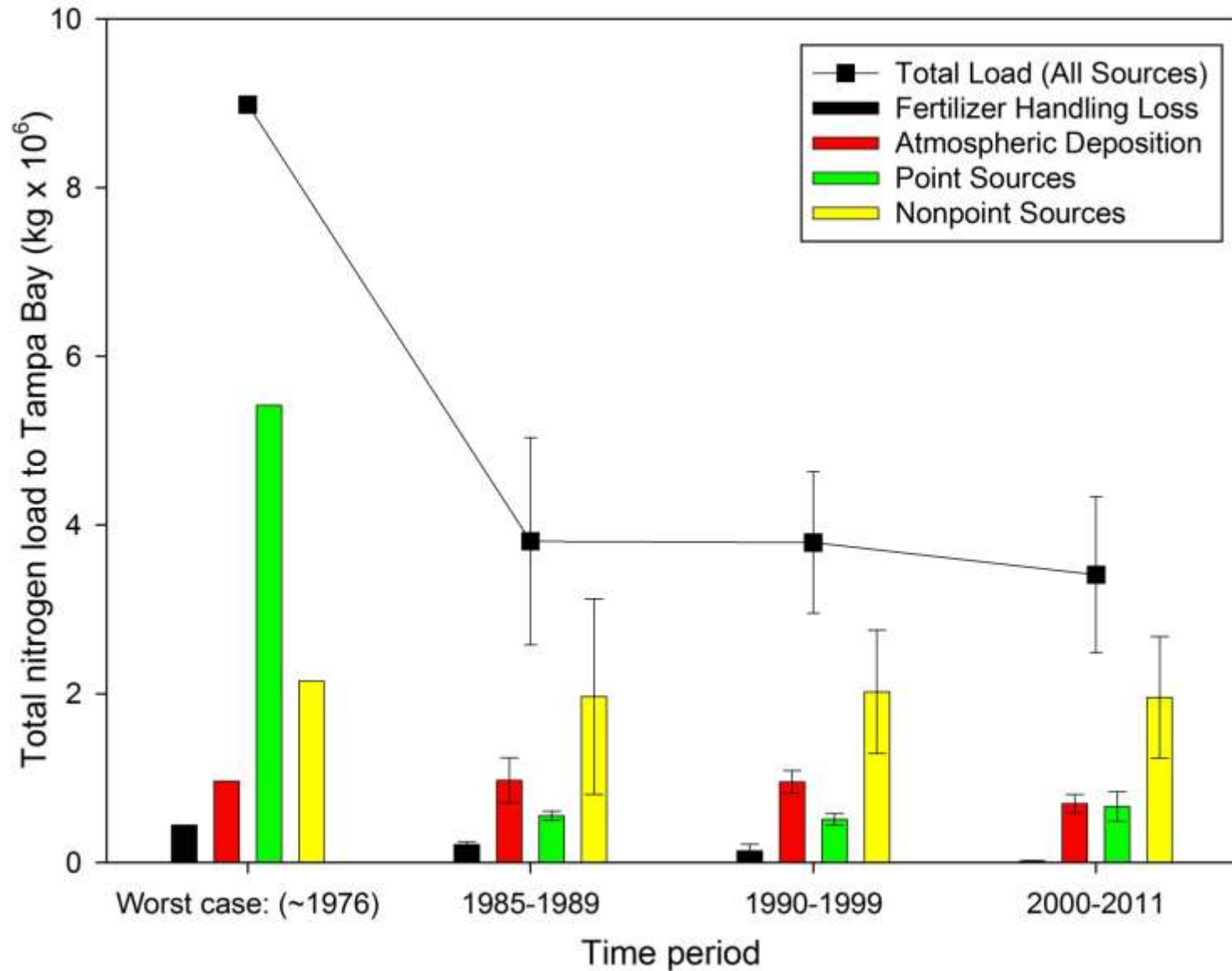
45+ NMC participants responsible for meeting nitrogen load reduction goals

Many projects have improved the Bay

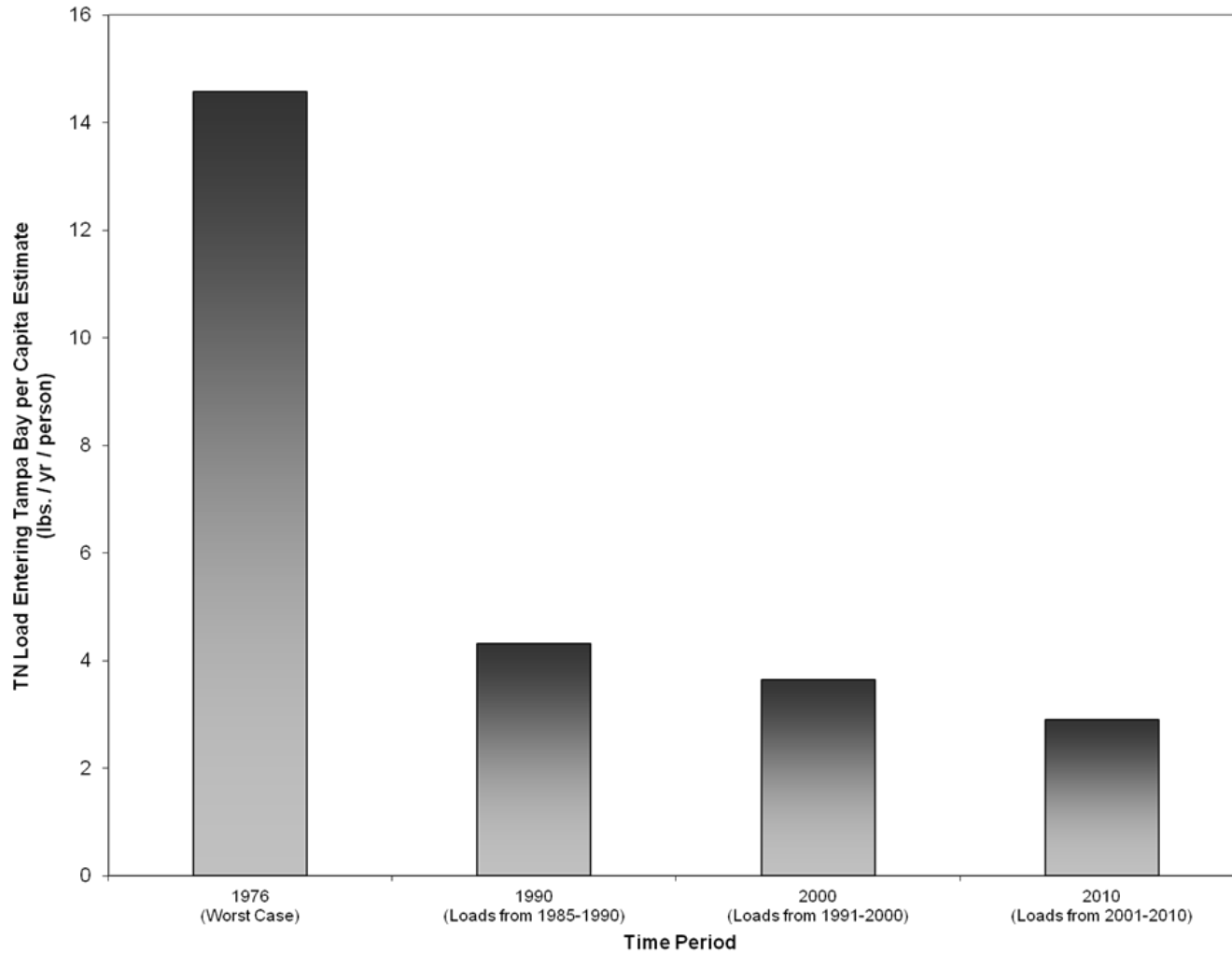
- 300+ projects implemented between 1996-2013
- Decreased industrial discharges
- Upgrades to sewage plants
- Improvements to air quality at power plants
- Better handling of fertilizer manufacturing materials
- Stormwater treatment
- Residential landscape fertilizer restrictions



Nitrogen load has decreased



Per capita TN load reduced by 80%



Water quality has improved

Annual average chl-a concentration thresholds

Advanced wastewater treatment begins

Stormwater regulations enacted

NMC formed

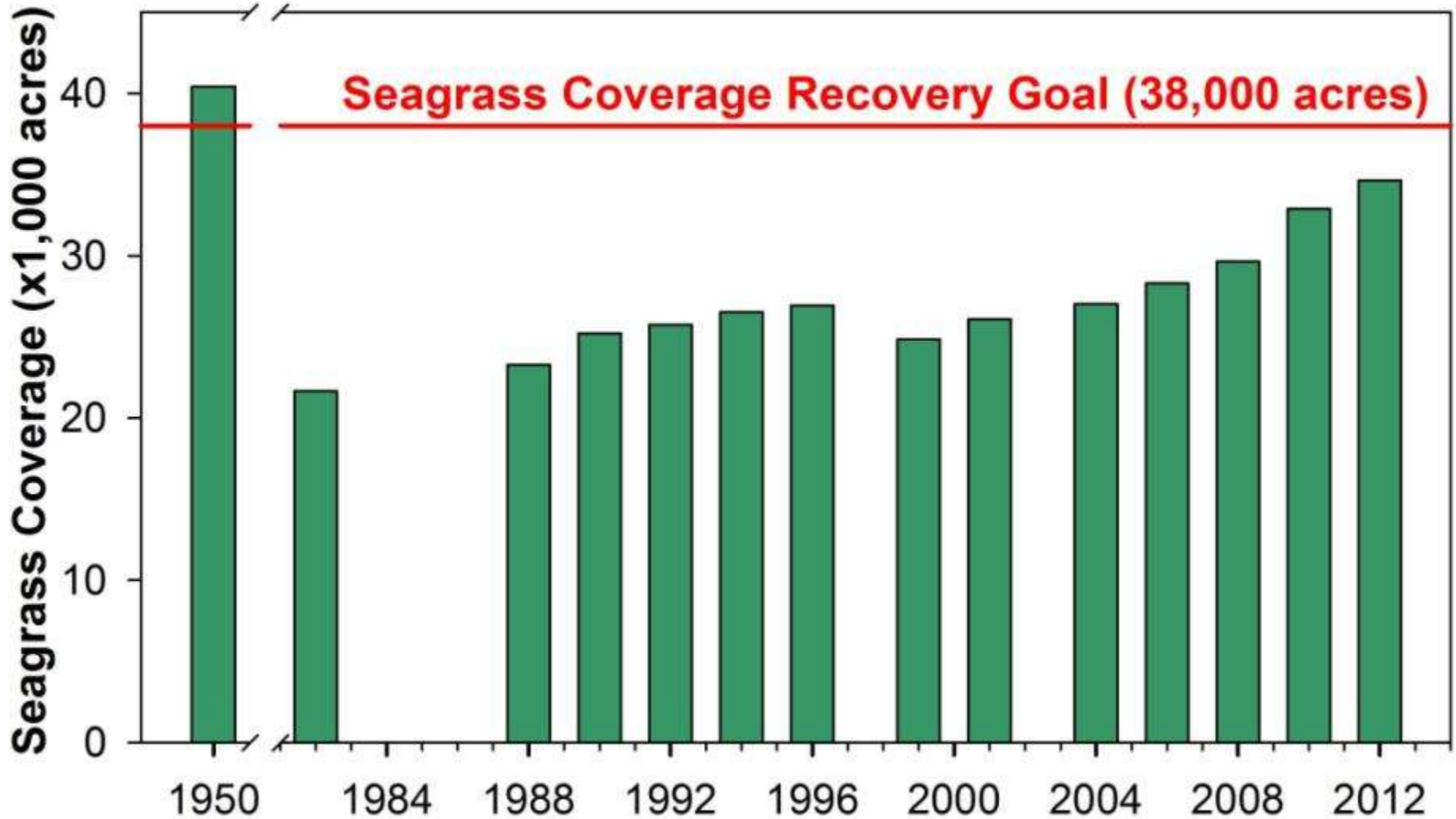
Year	Old Tampa Bay	Hillsborough Bay	Middle Tampa Bay	Lower Tampa Bay
1974	No	No	No	Yes
1975	No	No	No	Yes
1976	No	No	No	Yes
1977	No	No	No	No
1978	No	No	No	Yes
1979	No	No	No	No
1980	No	No	No	No
1981	No	No	No	No
1982	No	No	No	No
1983	No	No	No	No
1984	Yes	Yes	No	Yes
1985	No	No	No	Yes
1986	No	No	Yes	Yes
1987	No	Yes	No	Yes
1988	Yes	Yes	Yes	Yes
1989	No	Yes	Yes	Yes
1990	No	Yes	Yes	Yes
1991	Yes	Yes	Yes	Yes
1992	Yes	Yes	Yes	Yes
1993	Yes	Yes	Yes	Yes
1994	No	No	No	No
1995	No	No	No	Yes
1996	Yes	Yes	Yes	Yes
1997	Yes	Yes	Yes	Yes
1998	No	No	No	No
1999	Yes	Yes	Yes	Yes
2000	Yes	Yes	Yes	Yes
2001	Yes	Yes	Yes	Yes
2002	Yes	Yes	Yes	Yes
2003	No	Yes	Yes	Yes
2004	No	Yes	Yes	Yes
2005	Yes	Yes	Yes	No
2006	Yes	Yes	Yes	Yes
2007	Yes	Yes	Yes	Yes
2008	Yes	Yes	Yes	Yes
2009	No	Yes	Yes	Yes
2010	Yes	Yes	Yes	Yes
2011	No	Yes	Yes	Yes
2012	Yes	Yes	Yes	Yes



Photo by Bryan Chamberlain

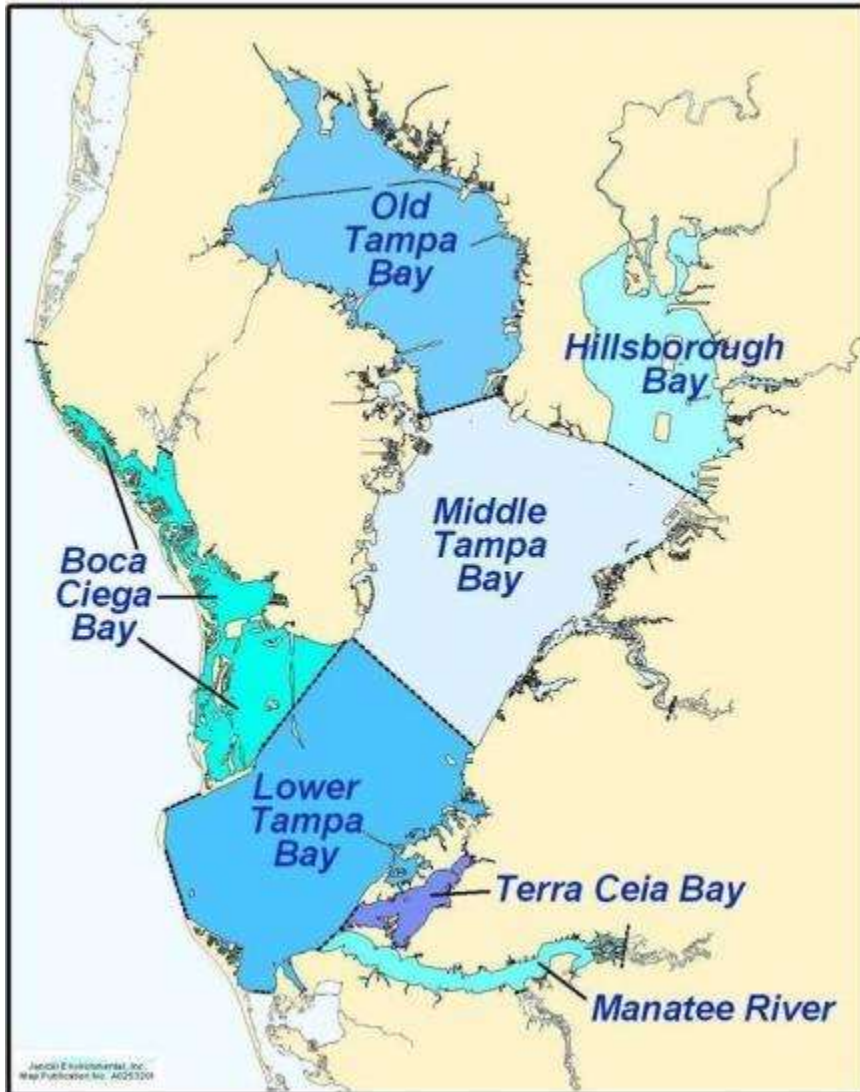
Data source: EPCHC

And seagrasses have responded



Data: SWFWMD

Tampa Bay TMDL



1998- EPA Region 4 approves TN loads for 1992-1994 as TMDL for nitrogen for Tampa Bay.

2008- EPA stated that allocations would be required to be incorporated into FDEP regulatory permits in 2010

FDEP allowed Consortium to collaboratively develop recommended allocations to all sources within the watershed.

Key Decision: Collaborative Management Strategy

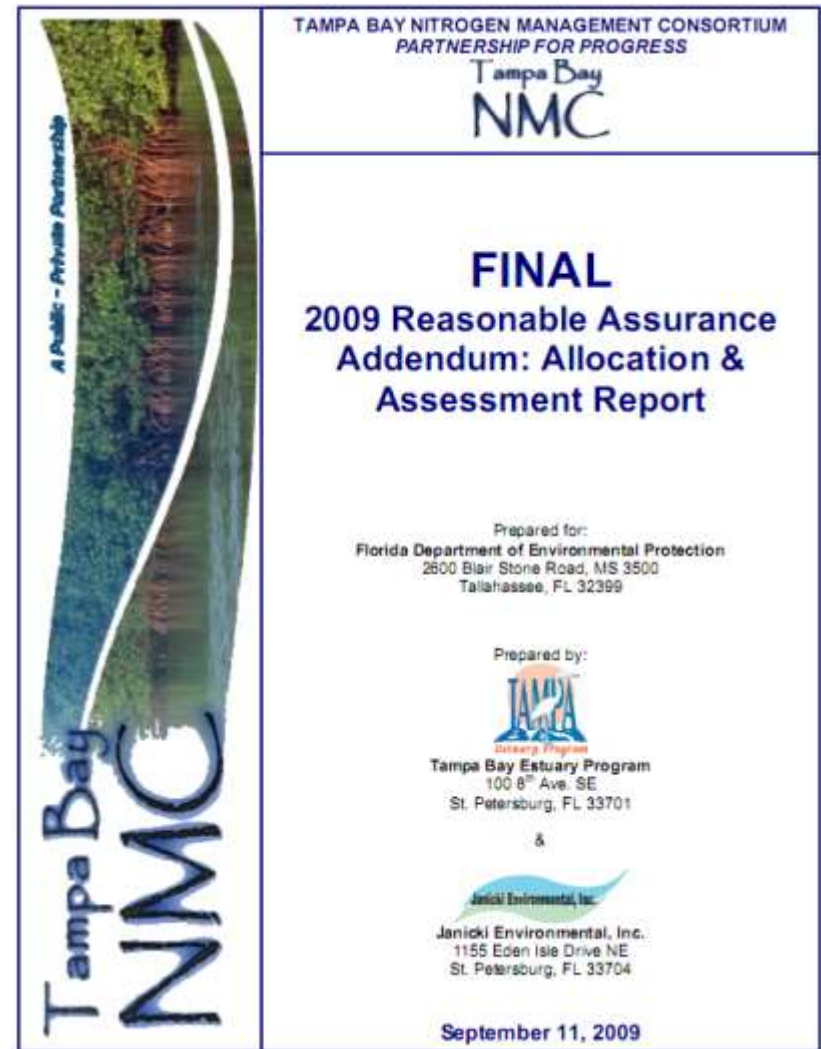
Consortium participants willing to work together to develop voluntary allocations (caps) for nitrogen loads, for agencies' consideration.

Decided they wanted to 'drive the bus'



Tampa Bay Nitrogen Management Consortium

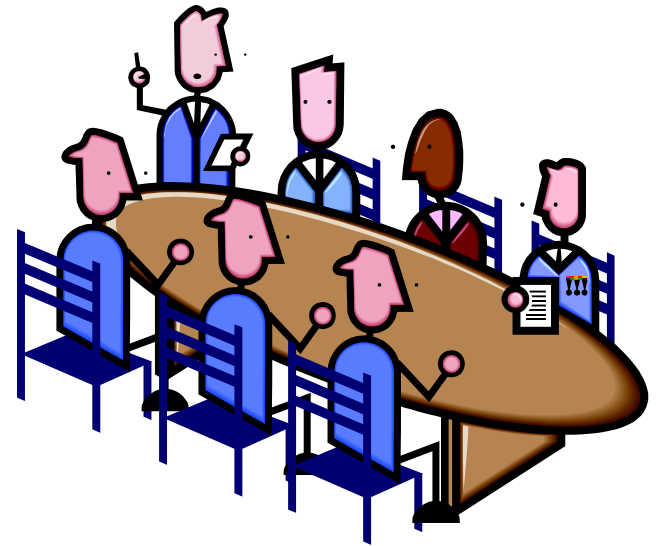
- 40+ public and private partners throughout watershed- collaborative approach to meeting regulatory water quality goals (EPA TMDL)
- Consortium **developed and agreed to voluntary 'caps'** on nitrogen loads at 2003-2007 levels for all sources. Caps now incorporated into permits.



What's Working in Tampa Bay: NMC Key Elements

Invite all to participate in a collaborative process

- Public sector
- Private sector- industries
- Regulatory agencies
- Agriculture (FDACS)
- Electric utilities
- Any entity with a discharge permit



What's Working in Tampa Bay: NMC Key Elements

'Agreement to Participate'

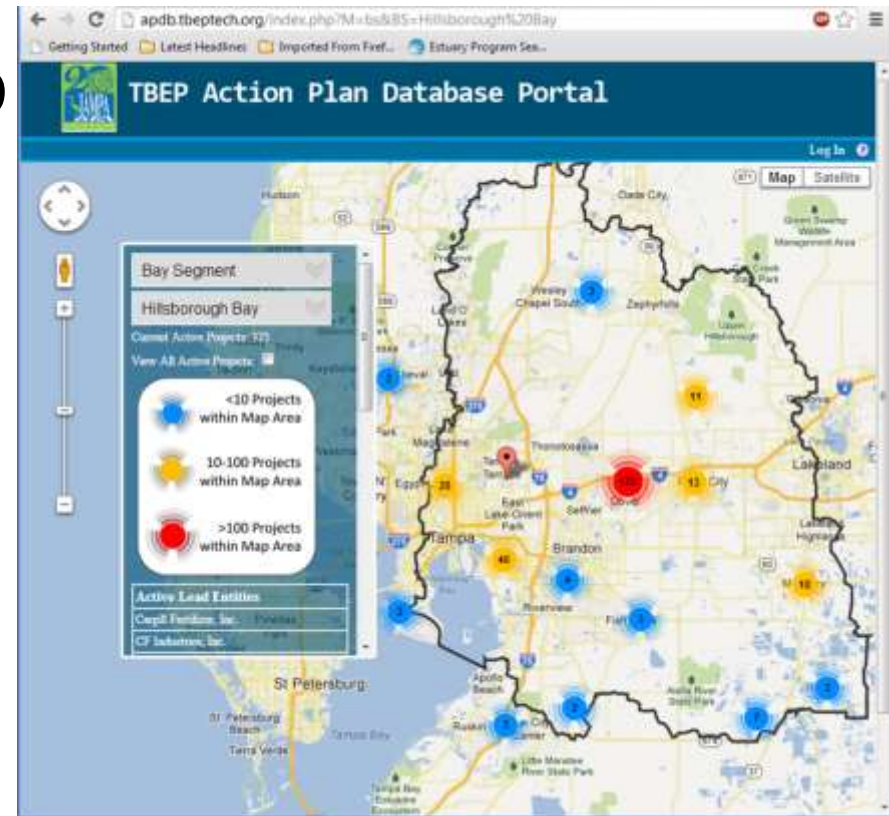
- All parties sign on to act in good faith
- Identify the goals
- Agreement to contribute funds to support technical work
 - NMC participants contribution \$6K every 5 years



What's Working in Tampa Bay: NMC Key Elements

Develop one database to track projects and nutrient reductions

- RA, TMDL, permits
- Project entry is responsibility of each party
- Database maintenance responsibility of organizer



<http://apdb.tbep.tech.org>

WE WILL BE GLAD TO SHARE
TAMPA BAY'S DATABASE

Stay science-based: Evaluate other factors



Algae bloom in Old Tampa Bay
August 2011

*Integrated Watershed-
Groundwater-
Circulation- Ecology
Model* to test various
management scenarios,
including:

- alteration to bridge openings;
- changes in delivery of freshwater;
- further reduction nutrient runoff
- sea level rise effects

Key Elements in Tampa Bay's Management Strategy

- Target resources identified by both public and science as “worthy” indicators
- Community willing to work together towards common goals
- Science-based numeric goals and targets
- Multiple tools: Regulation; public/private collaborative actions; citizen actions
- Long-term monitoring
- Recognized “honest broker” to track, facilitate, assess progress
- Assessment and adjustment

Challenges Ahead

momentum

growth climate

institutional change

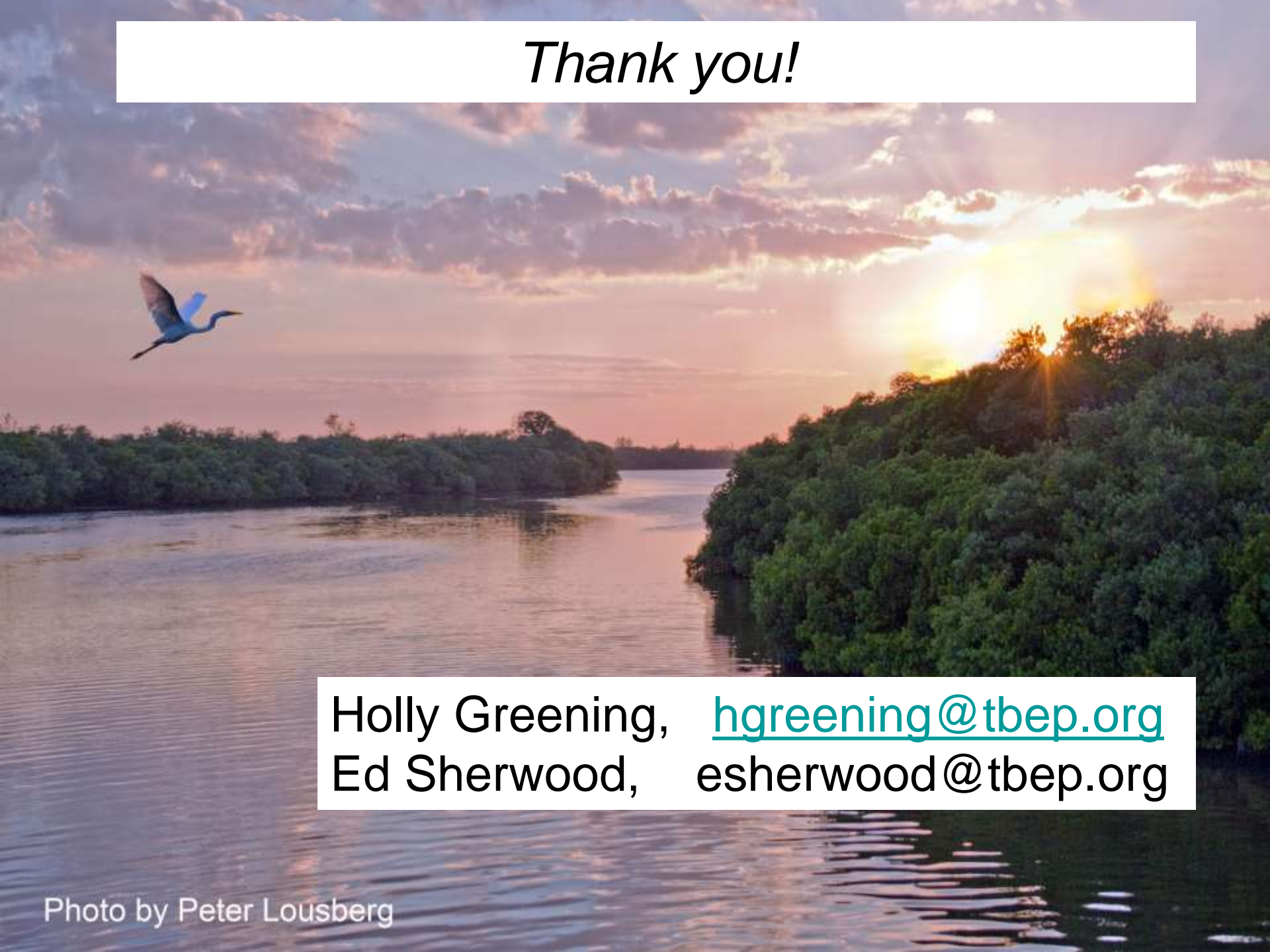
maintaining population

memory

Word

It Out

Thank you!



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Photo by Peter Lousberg