This year $85,000 was available to fund Bay Mini-Grant projects. TBEP received 38 applications totaling $169,000 in funding requests. This list contains the 21 grant applications that were recommended by the Executive Director using findings supplied by the Community Advisory Committee.

1. **Around the Bend Nature Tours**
   *Protecting our Watershed through Bird Education*
   
   With this grant, students will learn about Tampa Bay watershed and the importance of protecting the watershed to protect the wildlife. This will be accomplished by providing 7 field trips to Felts Preserve for 3rd graders in Manatee Co. Students will rotate through 3 activities during the trip. Funds awarded will provide for 5 field trips.

2. **Audubon Florida, Florida Coastal Islands Sanctuaries**
   *History of Tampa Bay Conservation – A Bird’s-eye View*
   
   The six-month exhibit, scheduled from June through December 2017 at the Tampa Bay History Center (TBHC), will present the History of Conservation in Tampa Bay with the focus on its avifauna. The 1,300 square foot exhibit room provides ample space for wall- and free-standing displays, and video/sound projections to tell the stories of Tampa Bay’s natural history and the pivotal people who initiated bird conservation activities.

3. **Bayou Outdoor Learning and Discovery, Inc.**
   *aka Camp Bayou Outdoor Learning Center Educational Program Upgrades*
   
   The ‘Collecting Pond’ project will allow our rotation station program to have a more realistic critter netting experience than can be done with the time and group size constraints we currently experience. The ‘Wildlife Blind’ will convert our pavilion into a place where students can gather to watch the wildlife outside with less intrusion. The “Floating Observation Platforms” will allow more visitors to discover the wonders of the river to embrace stewardship and protection of the Little Manatee River.

4. **Blue Turtle Green Bird Society**
   *Blue Green Fleet Keeps Waters Neat*
   
   The goals of this project are: 1) Use kayaks for BTS and Watergoat cleanups; 2) Loan and deliver kayaks to small organizations for their waterway cleanups; 3) Collect, analyze, and make available data on marine debris collection amounts and locations.

5. **Boys & Girls Clubs of Manatee County, Inc.**
   $2,975.00
Great Bay Great Futures
Implement and increase our environmental programming through field trips. Teach fish and wildlife conservation and its importance, as well as increase knowledge of invasive species and water quality. Kayak trips, crab inquiry field trip and dip netting trips will provide an opportunity for participants to venture outside their neighborhoods.

6. Canterbury School of Florida
Tampa Bay Plastic Pollution Project

The primary goal of this project is to engage students in active science research projects on marine debris and micro plastics in Tampa Bay. This project will be incorporated into established dolphin research cruises that occur monthly with Canterbury students and Eckerd College students and professors. The proposed project will involve students in grades kindergarten through twelve at the Canterbury School of Florida, students in grades 3 through 5 at Shoreacres Elementary and college students from Eckerd College.

7. Crescent Lake Neighborhood Association
Littoral Wetland Enhancement at Crescent Lake: Building on Success

The grant addresses fish and wildlife conservation by providing a robust model of volunteer activism for the sole purpose of enhancing native biological diversity and increasing ecological support functions of the lake. Prior work has created and restored habitats that would otherwise not exist given the status quo of maintaining an open and un-vegetated shoreline. This project’s goal is further the improvements in the lake by removing non-native plant species and expand the installation of a diverse flora of native littoral vegetation around the perimeter of the lake.

8. Ecosphere Restoration Institute
Ulele Springs Flow Enhancement Project

In 2014 Ecosphere spearheaded the restoration of Ulele Spring; restoring the natural spring run from the existing spring boil to the Hillsborough River. This successful restoration project now supports over 25 species of native fish and also manatees. This third spring currently flows through the adjacent stormwater system. The objective of this is project is to capture this “third” spring flow and deliver this flow into the recently restored spring run. This additional flow will ensure that the all of the available natural spring flows are delivered through the recently restored spring run.

9. Florida Southern College
Fostering Ecosystem Awareness by Examining Macroinvertebrate Community Structure in Tampa Bay

This project seeks to establish an initial baseline for continued monitoring of macroinvertebrate community structure which will be used to evaluate Bay-wide restoration efforts. Student volunteers will be taught data collection techniques and educated to become future conservationists for Tampa bay. Likewise, by learning the connectivity between overall Bay
health and macroinvertebrate communities, students will become ambassadors for the Bay, capable of scientifically discussing ecosystem health by examining bioindicators.

10. Friends of DeSoto National Memorial Park Inc.    $3,040.00
DeSoto National Memorial Park Shoreline Reconstitution

The DeSoto shoreline project is needed to stop the erosion of the shoreline. Sections are slowly disappearing and need to be reinforced by native plants and riprap. The size and mass of the riprap material absorbs the impact energy of waves, while the gaps between the riprap traps and slows the flow of water, lessening its ability to erode soil or structures. Native plants will be purchased as replacements for the plants that have either died or washed away due to erosion.

11. Gulf Beaches Elementary Magnet School, PTA    $3,075.00
Coastal Woodlands Restoration

Our goal is to revive this area and continue educating students & families about native species and their value to the Tampa Bay. This natural agricultural layout will educate the students on how the plants and animals depend on this habitat for survival. Our goal is to have a natural school environment that will continue to teach throughout Tampa Bay.

12. Keep Pinellas Beautiful, Inc.       $5,050.00
Educating "We All Live Downstream" Watershed Communities

For this project, habitat beautification, litter prevention, and maintenance of the natural environment will be incorporated into customized education curriculum with biannual cleanups targeted for kids. The project will provide a strong foundation on the topics of discussion while incorporating practical hands on application of the proposed solutions in the field.

13. Manatee School for the Arts       $5,000.00
Exploring and Conserving Tampa Bay Through Field Work, Interactive Art Infused Notes and Labs

The main goal of this project is to engage and educate the marine science students of Manatee School for the Arts (MSA) through hands-on curriculum, not only in the classroom, but in and around Tampa Bay. The students will become stewards and knowledgeable scientists of Florida’s largest estuary through field trips to Tampa Bay Watch and the Florida Aquarium, as well as creating an interactive, art infused binder that will assist the students in the classroom.

14. Mulrennan Middle School Science Club     $2,035.00
Tampa Bay Restoration

Science Club students will actively participate in the restoration of Tampa Bay by maintaining a Spartina alterniflora nursery, on campus, that houses approximately 100 square feet of bay grass. This grass will be harvested and divided. Half of the plants will be replanted in the nursery to regenerate. The other half will be planted in Tampa Bay by students, teachers and parent volunteers.
15. NAUI Green Diver Initiative
Gasp-Our Beads of Tampa Bay

A nod to the 101-year old Gasparilla flotilla and parade tradition of throwing bead necklaces and a direct reflection of our sentiments on the issue of plastic bead necklaces in Tampa Bay. In its early years the Gasparilla flotilla and parade Krewes only tossed glass beads, but over time and with increased popularity the inexpensive plastic bead necklace has stayed. Sinking plastic bead necklaces has thus become an out of sight, out of mind issue for Bay health. We will work with local middle school and high school students from SCUBAnauts International to aid in collecting data from our survey dives.

16. One More Generation (OMG)
OneLessStraw Pledge Campaign

Did you know that every day in America, we are using 500,000,000 (no that’s not a typo) plastic straws and that none ever get recycled? That is enough plastic straws to fill 127 school busses every day of the year. This is a three-pronged approach targeting schools, restaurants and using social media to create a change in behavior by asking people to take a pledge to not use plastic straws.

17. START Solutions to Avoid Red Tide
Gulf Coast Oyster Recycle and Renewal

This project will launch a Manatee County fresh oyster shell recycling effort to help restore the coastal ecosystem and improve water quality of Tampa Bay. Shell collection will occur at restaurants located in Anna Maria and Longboat Key; shell recycling and seeding activities will occur at Perico Preserve and/or Robinson Preserve in Bradenton. At a minimum 2400 gallons of shell will be returned to the Tampa Bay natural habitat, based upon three months of shell collection, with one collection from each restaurant per week (16 pickups).

18. Tampa Bay Watch, Inc.
Safety Harbor Community Wetland Enhancements

A partnership with the City of Safety Harbor, is proposing to conduct several plantings at the new Safety Harbor Waterfront Park. The area targeted is part of a two phase project for the city and the proposed planting site is part of phase 2. The site will be cleared of invasive species and the area will be graded for wetland habitat specifically Spartina alterniflora or smooth cordgrass. Students from Bay Grasses in Classes along with volunteers will plant native grasses in the cleared areas.

19. The Shores of Long Bayou HOA
Sweep the Street in Front of Your Own Home

Education and restoration at the Shores of Long Bayou community. Invasive plants will be removed; litter will be cleared out as the community works towards an invasive species-free
Preserve area by the end of 2017. The Wetlands Committee will revitalize two ponds and share the preservation and restoration techniques at the Florida Lake Management Society Conference.

20. UF/IFAS Extension Pinellas County  
Reducing Microplastics in the Tampa Bay Area  
$5,011.95

This grant will raise awareness of microplastics and the threats they pose to the Bay and train citizen scientists to collect and analyze coastal water samples for the presence of microplastics. The grant will expand current efforts in Pinellas County and the Tampa Bay area by continuing education and outreach efforts, adding more Florida Microplastic Awareness Project (FMAP) Coordinators locally, and collecting and analyzing coastal and fresh water samples.

21. Wildlands Conservation  
Bat Diversity and Abundance in the Tampa Bay Watershed  
$4,982.00

This project proposes to gather data on the extent and relative abundance of bat species occurring in the Tampa Bay watershed, and involve community members throughout the Tampa Bay watershed by conducting educational programs at the sites that are surveyed and through online distribution of the survey results. The sites where this project will sample include several locations that are likely to be impacted by climate change driven sea-level rise in the coming years. This project has an opportunity to collect baseline data at these sites now to document the bat community and track how it may change in the face of rising seas and increased salt water inundation of current freshwater habitats.
In April 2011, the Tampa Bay Estuary Program (TBEP) launched a social marketing campaign to reduce residential fertilizer runoff to Tampa Bay. The campaign supported local fertilizer ordinances banning sales and use of nitrogen lawn and landscape fertilizers in the summer rainy season. TBEP was instrumental in the development and adoption of these city and county ordinances.

Although nitrogen loading is a serious environmental issue, Be Floridian was a light-hearted campaign that encouraged homeowners to “skip the fertilizer” to protect the waterways that make living in Florida fun. The campaign embraced research-based principles of social marketing that focus on changing behaviors rather than simply increasing knowledge or awareness.

Research used to develop the Be Floridian campaign included Focus Groups (both in-person and online); audience segmentation; test messaging with various audiences; and evaluation of campaign effectiveness using internal and external research.

Over a 5-year period, Be Floridian used billboards, print ads, vehicle wraps, a resource-rich website, community outreach, sharable infographics and a dynamic social media presence, enhanced by its plastic pink yard flamingo mascot. A highlight of the final year of the campaign was a traveling exhibit of yard flamingos painted by area artists that toured museums, art centers, tourist attractions and an airport promoting the “Protect Our Fun” theme. More than 230,000 people viewed the unique flock during its year-long tour of the region.

Internal evaluation included campaign recall and pop-up web surveys, as well as surveys conducted at community outreach events over multiple years. Those tools have shown that Be Floridian has helped to change fertilizer practices and attitudes about what constitutes an attractive landscape.

By reminding people that they live in the Tampa Bay area because of water-based recreation like fishing and going to the beach, and emphasizing that True Floridians know better than to fertilize in the summer, a majority of homeowners surveyed through the Be Floridian campaign now understand why applying fertilizer before heavy rain is not a good idea.

To learn more visit www.tbep.org
CCMP Accomplishments for PH-4

PH-4: Reduce human and pet waste to ensure the continued viability of traditional bay recreation areas and waters safe for fishing and swimming

Status: Moved from Public Access Action Plan. Expanded to encompass all bay waters designated Class IIII “fishable and swimmable.”

2006 -2014

PET WASTE

- TBEP implemented a comprehensive pet waste education campaign, “Pooches for the Planet.” This program utilize GPS mapping of dog poop piles in pilot parks, neighborhoods and a nature preserve in Manatee County to track the effectiveness of various education methods. Strong behavioral changes were observed following directed education, especially in conjunction with installation of pet waste bag stations. An average 85.5 reduction in poop piles was documented in the three St Petersburg neighborhoods; a 60% decrease in poop piles was observed in a Manatee County nature preserve. See attached Pooches for the Planet grant report for SWFWMD.

- Key components of Pooches for the Planet:
  - Eye-catching signs posted at waterfront parks in Tampa, St. Petersburg, Manatee County, and at all dog parks in Pinellas County. Signs and pet waste stations posted at nine neighborhood/regional parks in St. Petersburg. (FY 10).
  - “Scoop That Poop” informational posters, rack cards and business-sized “Scoop That Poop” pledge cards distributed to more than 500 vet clinics in Hillsborough, Manatee and Pinellas counties. (FY10).
  - A 60-second video PSA about the importance of proper pet waste disposal, posted on TBEP’s You Tube channel (www.youtube.com/TheTBEP) and aired widely on local government access stations.
  - Distribution of more than 1,000 “Scoop That Poop” door hangers” as part of a pilot project with three neighborhoods in St. Petersburg. Distribution of an additional 5,000 door hangers from 2010-2015 by request to area neighborhoods, condos and apartment complexes.
  - 1,800 free “Pooches for the Planet” adoption kits distributed through the county and humane society animal shelters in Manatee and Pinellas counties (FY09, FY10). The kits were given to everyone who adopted a dog from the participating shelters during a 6-month time frame. The kits contained information about the environmental and public health impacts of pet waste; a poop bag dispenser; a survey; a pet waste cartoon video on DVD; and a variety of treats, toys and
discount coupons from area pet businesses that joined the campaign as members of our “Pooches Club” business partner program.

- TBEP worked with Manatee County to create the “AmbassaDogs” program at Robinson Preserve. (FY10-11) This innovative effort enlisted dog owners who regularly use the preserve to interact and provide info about the importance of poop-scooping to other dog walkers in the Preserve. AmbassaDogs 2-legged team members wore special backpacks carrying Bags on Board pet waste dispensers that they handed out to other dog walkers. Their 4-legged partners wore special AmbassaDog jackets. Project leaders used GPS units to track the success of the program; poop piles at the Preserve decreased from a baseline of 43 to 17 over the 7-month pilot project.

- Pet waste has been identified as a problem in basin management plans developed y Pinellas County. Most local governments now provide pet waste bag stations and signs about the importance of picking up pet waste at public parks, dog beaches and dog parks. Hillsborough County Stormwater and area Keep America Beautiful affiliates (Keep Manatee Beautiful, Keep Pinellas Beautiful, Keep Tampa Bay Beautiful, etc) have also provided significant education about this issue. SWFWMD provided significant education on this topic in past years (not so much now, when their regional education has primarily focused on water conservation).

HUMAN WASTE

Municipal sewer overflows are an ongoing problem related to aging/ inadequate infrastructure and extreme storm events and associated flooding. Ben T. Davis Beach on the Courtney Campbell Causeway is a waterfront park operated by the city of Tampa where fecal coliform monitoring occurs; the beaches are closed when fecal coliform levels warrant. Picnic Island is another bayfront park where swimming is allowed – not sure if sampling occurs there.

I also don’t know if bacterial monitoring is routinely conducted now at informal bay recreation areas such as the beaches along Gandy Boulevard in Pinellas County, or on the Pinellas Bayway leading to Fort DeSoto Park. These beaches have no restroom facilities (lack of resources and security concerns have made local governments reluctant to install and maintain restrooms outside of formal parks.)

During the extreme flooding in August 2015, people were cautioned to stay out of bay waters in general due to the threat of bacterial contamination from both wastewater overflows and the high volume of stormwater runoff.

The Hillsborough River BMAP also highlighted the homeless population as a potentially significant source of fecal coliform in urban areas. See initial BMAP at https://www.dep.state.fl.us/water/watersheds/docs/bmap/hillsb_bmap_adopted.pdf

In January 2014, the TBEP Policy and Management Boards held a day-long strategic planning session, facilitated by TriSect. The Boards identified strengths, weaknesses, opportunities and threats (Appendix A) and developed draft strategies for addressing the future focus of TBEP.

This Strategic Plan is the result of the planning session, and is meant to be a living document.

The November, 2016 update includes progress made on goals since 2014.
**MISSION STATEMENT:**

The mission of the Tampa Bay Estuary Program is to build partnerships to restore and protect Tampa Bay through implementation of a scientifically sound, community-based management plan.

**VISION STATEMENT:**

Maintain the successful science-based focus on improving water quality and habitat protection while enhancing and strengthening collaboration and communication to continue Tampa Bay’s recovery.

**FOCUS AREAS:**

- Science
- Collaboration/Partnerships
- Succession Planning/Board Continuity
- Funding
- Communication/Education
Goal 1: REMAIN SCIENCE-BASED
Maintain scientific integrity as the cornerstone of TBEP.

Goal 2: ENHANCE COLLABORATION and PARTNERSHIPS
Maintain and enhance successful culture of collaboration among and between TBEP and public and private partners.

Goal 3: DEVELOP SUCCESSION PLANNING/BOARD CONTINUITY
Maintain institutional knowledge, skills and leadership in staff and TBEP Boards.

A Partnership for a Healthy Bay
Goal 4: MAINTAIN ADEQUATE PROGRAMMATIC FUNDING

Support TBEP Program Operations with primarily local partner funds within 10 years in an effort to become less dependent on outside funding.

Goal 5: ENHANCE COMMUNICATION/EDUCATION

Create a constituency of informed, involved citizens who understand both the environmental and economic value of Tampa Bay and actively participate in restoring and protecting it.
GOALS, ROLES AND ACTIONS

Goal 1:
Maintain scientific integrity as the cornerstone of TBEP

TBEP is a national model in large part because it creates “tangible environmental outcomes and monitors and tracks successes”.

TBEP Policy Board Member

Scientists sorting catch during sampling trip
Goal 1: Maintain scientific integrity as the cornerstone of TBEP

Roles:

- For potentially controversial issues, TBEP staff can provide scientific and technical information and participate in technical discussions, but will not oppose or support specific projects or permits.

- The TBEP Management Board, Technical Advisory Committee (TAC) and Community Advisory Committee (CAC) members, acting as a TBEP Advisory Committee or as individual members representing the Management Board, TAC or CAC, also cannot support or oppose specific projects or permits.
Goal 1: Maintain scientific integrity as the cornerstone of TBEP

Roles continued:

- Sea Level Rise: Focus on potential implications for habitat and natural resources.
  - Staff develop a clear science-based message for Board implementation.
  - Staff assist in facilitating the dialog and participate in regional discussion.

Approved sea-level rise statement: August, 2014

Over time, rising water levels in Tampa Bay are projected to inundate substantial portions of low-lying shorelines in the watershed, resulting in either the degradation, change in composition, or complete loss of key coastal habitats. These coastal habitats support commercially and recreationally valuable fish and wildlife resources. Through research, technology transfer and public education, the Tampa Bay Estuary Program will support development of appropriate management actions to protect and improve the resiliency of critical coastal habitats impacted by sea level rise into the future for the benefit of both the ecological and socio-economic resources of the estuary.

Actions:

- Maintain scientific integrity as the cornerstone of TBEP through all activities of TBEP staff and Advisory Committees.
Goal 1: Maintain scientific integrity as the cornerstone of TBEP

✓ Progress since 2014

- More than 20 technical projects and grants ongoing
- Finalized projects:
  - Old Tampa Bay Integrated Model;
  - Feather Sound Restoration;
  - Tidal Creeks Assessment; Blue Carbon Assessment;
  - Upper Old Tampa Bay salinity barrier removal assessment
- TBEP staff members now include four scientists:
  - Senior Scientist
  - Ecologist
  - Technical Projects Manager
  - Executive Director
Goal 1: Maintain scientific integrity as the cornerstone of TBEP

✅ Progress since 2014

TBEP Science-Based Regional Collaboration Recognized

2015 OneBay McIntosh Award for Regional Collaboration
2015 Regional Leadership Award to TBEP Executive Director
GOALS, STRATEGIES AND ACTIONS

Goal 2:
Maintain and enhance successful culture of collaboration among and between TBEP and public and private partners.

“The non-biased consensus building approach to actions is what is unique to the TBEP. It was imperative that the local governments work together to manage Tampa Bay because we shared the same goals and could combine resources to accomplish more activities.”

TBEP Management Board Member
Goal 2: Maintain and enhance successful culture of collaboration among and between TBEP and public and private partners.

**Strategies:**

**Internal collaboration:**

- Identify opportunities for collaboration existing within our own bounds (Examples: Nitrogen Management Consortium; RESTORE; collaborative habitat restoration projects; education and outreach events).

- Enhance communication between Boards about what each is doing
  - Both Policy and Management Board representatives attend quarterly Executive Director briefings.
  - Policy Board members appoint a representative to the Community Advisory Committee, and meet at least annually with their appointee - example: invite the Community Advisory Committee appointee to attend a Policy Board meeting with the Policy Board member.
  - Technical and Community Advisory Committee (TAC and CAC) chairs continue to provide brief updates for inclusion in Management and Policy Board meetings as Management Board members.
  - Nitrogen Management Industry Co-Chair provides input as Management Board member as milestones or issues arise in Consortium.
Goal 2: Maintain and enhance successful culture of collaboration among and between TBEP and public and private partners.

**Strategies continued:**

**External collaboration:**
- Community Advisory Committee and Management Board make recommendations to the Policy Board on potential external collaboration partners. Policy Board identifies one type of partner to focus on for three years.

- Engage Community Advisory Committee in creating a plan to build a self-sustaining partnership (2-3 year cycle) with targeted groups, specifically for education and outreach. Example: Connecting with dive shops which can exemplify good stewardship of the bay and will educate their clients.

**Actions:**

- Target local college students as the focus group for the environmental education project highlighting the importance of a healthy Tampa Bay

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Eckerd College students participating in a clean-up.
Goal 2: Maintain and enhance successful culture of collaboration among and between TBEP and public and private partners.

✅ Progress since 2014:

Internal and External Collaboration

- Both Policy and Management Board representatives are invited to attend quarterly Executive Director briefings.
- Four Policy Board members have appointed Community Advisory Committee (CAC) members – others encouraged to also.
- CAC coffee and presentation to Policy Board in May 2016.
- Technical Advisory Committee (TAC), CAC and Nitrogen Management (NMC) chairs are voting members of the Management Board.
- Policy Board approved local college students as the focus for environmental education highlighting the importance of a healthy bay.
- CAC Education Subcommittee formed and developed an engaging presentation.
- CAC members have ‘adopted’ several colleges and are scheduling presentations this fall.
GOALS, STRATEGIES AND ACTIONS

Goal 3:
Maintain institutional knowledge, skills and leadership in staff and TBEP Boards.

Strategic Planning Session, 2014
Goal 3: Maintain institutional knowledge, skills and leadership in staff and TBEP Boards.

**Strategies:**

**Programmatic Strategies:**
- Review organizational structure as a component of the strategic plan.
- Ensure operational procedures are documented and up to date.
- Identify potential attrition of staff members.
- Develop and establish process drawing from member organizations for succession documentation.

**Organizational Strategies:**
- TBEP Management reports to each member annually (Example: BOCCs/ Councils/Gov. Board).
- Encourage Policy Board representative to encourage Management Board representative to report on a regular basis.
- Encourage member governments to provide longevity of PB members (at least 2 years).
- Seek new ways to identify future new board members.
- Distribute accomplishments annually to full membership of each PB governing board.
- Consider Management Board succession process, including training.

A Partnership for a Healthy Bay
Goal 3: Maintain institutional knowledge, skills and leadership in staff and TBEP Boards.

✓ Progress since 2014

Staff succession plan:

Anticipated attrition:
- Anticipated retirement dates of existing staff are at least one year apart, which provides stability and continuity while a new staff member becomes familiarized and trained.
- Every effort will be made to overlap a retiring staff member and a new hire for that position for up to one month, to promote on-the-job training.
- All staff members are encouraged to maintain and extend their skills by participating in professional development activities. TBEP’s annual budget includes funds for each staff member to participate in a class, workshop, professional conference or online training at least once a year.
- Staff members interested in attending a national administrative or legislative meeting with the Executive Director are invited to participate as budget allows, to gain experience in these aspects of the program.
Goal 3: Maintain institutional knowledge, skills and leadership in staff and TBEP Boards.

✔ Progress since 2014

**Staff succession plan:**

**Unanticipated attrition:**
- In the event Executive Director (ED) is not able to serve, identify designated Interim Executive Director until Board hire a new ED.
  - Program Administrator is designated Interim if needed.
- Hiring process in place for all other staff members.
  - In Operating Procedures Manual.
- Operating procedures documents are up to date.
Goal 3: Maintain institutional knowledge, skills and leadership in staff and TBEP Boards.

✔ Progress since 2014

Organizational succession plan:

- Staff succession plan approved by Policy Board in August, 2014
- TBEP staff prepares annual one-page (front and back) summary of each TBEP/partner accomplishments from the previous year (including Return on Investment), for distribution at February Board meeting.
- Executive Director provides annual update as an agenda item to each Board member’s governing body in spring, providing annual summary as backup.
- TBEP members (within their organization) identify means of providing continuity between retiring and incoming TBEP Board members.
- To maintain continuity for Policy Board and Management Board members, Executive Director will provide orientation to new members.
GOALS, STRATEGIES AND ACTIONS

Goal 4:
Support TBEP Program Operations with primarily local partner funds within 10 years in an effort to become less dependent on outside funding.

St. Pete. Pier Photo: R. Hosler
Goal 4: Support TBEP Program Operations with primarily local partner funds within 10 years in an effort to become less dependent on outside funding.

**Strategies:**

- Gradually increase local partner contributions over 10 years. Partners may choose to contribute to the Tampa Bay Environmental Restoration Fund to help meet scheduled increases in dues.

- Tampa Bay Estuary Program Work Plan budgeted costs shall be funded by the Funding Entities (identified in the Interlocal Agreement) and allocated in accordance with Schedules 1 and 2 of Appendix B.
Goal 4: Support TBEP Program Operations with primarily local partner funds within 10 years in an effort to become less dependent on outside funding.

✔ Progress since 2014

Approved Funding Strategy, (November, 2014)
- Annual dues for Funding Entities will be determined by Schedule 1 of Appendix B under the following conditions:
  1) If a Funding Entity contributes to the TBERF in a particular year; or
  2) In the case of SWFWMD, if SWFWMD provides funding to the Tampa Bay Estuary Program through cooperative funding projects; or
  3) If a Funding Entity contributes to the Tampa Bay Estuary Program through projects which support the goals of the CCMP, are included in the approved Work Plan, and include a ten percent (10%) administrative fee for the Tampa Bay Estuary Program
- Annual dues for Funding Entities will be determined by Schedule 2 of Appendix B if section above, does not apply.
- Approved revised Interlocal Agreement (November, 2014) includes 2.5% increase/yr in Funding Entities dues or contribution to Tampa Bay Environmental Restoration Fund
- TBERF contributions includes management fees to help support TBEP management of grant fund.
GOALS, STRATEGIES AND ACTIONS

Goal 5:
Create a constituency of informed, involved citizens who understand both the environmental and economic value of Tampa Bay and actively participate in restoring and protecting it.

"For three years, our TBEP grant programs have allowed us to use team-based art projects to teach at-risk youth environmental science. Our facility is on the Hillsborough River, and it's because of this program that our teens understand and appreciate the tidal impact of the watershed. They have become so passionate about its value that they are now self-appointed community disciples for conservation and recycling."

Bay Mini-Grant Awardee
Goal 5: Create a constituency of informed, involved citizens who understand both the environmental and economic value of Tampa Bay and actively participate in restoring and protecting it.

**Strategies:**

**Social marketing:**

- Continue TBEP lead on Be Floridian residential landscape social marketing campaign with reduced effort starting in Year 5 (2015), transitioning to other entities to continue in future years.
- Provide Be Floridian materials and training to other entities starting in 2014-15.

**✔ Progress since 2014:**

- 5-Year Be Floridian residential landscape social marketing campaign finalized, maintained at base level (web, Facebook), adopted by other entities in 2016.
- Polls show that Be Floridian has helped change attitudes on fertilizer practices, especially in the summer.
Goal 5: Create a constituency of informed, involved citizens who understand both the environmental and economic value of Tampa Bay and actively participate in restoring and protecting it.

**Strategies continued:**

**General Education and Outreach:**

- Include item ($20K) in 2016 Work Plan to support an Education/Communication consultant to assist ad-hoc TBEP Communications Committee (Board, staff, CAC member) in development of Communications Plan for 2016-2020. Tasks could include:

  - Evaluate effectiveness of ongoing outreach activities in communicating, promoting involvement and education using current methods.

  - Evaluate effectiveness and level of effort for K-12 education efforts, including:
    - Train the trainers for summer camps.
    - Distribution of existing curriculum materials.

  - Identify effective and appropriate education and outreach components for TBEP focus in 2016-2020. Identify and focus on gaps in environmental education (avoid duplication of other efforts). Target ‘the public’ strategically.

  - Social media (Facebook)  Bay Soundings
  - Newsletters  Tampa Bay Water Atlas
  - Give-A-Day volunteer workdays  Boater/Angler education
  - Bay Mini-Grants  Pet waste education
  - Workshops, events  TBEP website

Efforts, including:

- Train the trainers for summer camps.
- Distribution of existing curriculum materials.
Goal 5: Create a constituency of informed, involved citizens who understand both the environmental and economic value of Tampa Bay and actively participate in restoring and protecting it.

✔ Progress since 2014:

- New campaign launching in October, 2016: #LoveTampaBay
- Form an ad-hoc TBEP Communications Committee (Board, staff, CAC members)
  - Not yet formed
- Evaluate effectiveness on TBEP outreach activities and K-12 education efforts
  - Approval of concept: August, 2016
- Develop a Communication/Education Plan for 2016-2020
  - After the effectiveness evaluation is complete
Goal 5: Create a constituency of informed, involved citizens who understand both the environmental and economic value of Tampa Bay and actively participate in restoring and protecting it.

**Strategies continued:**

**K-12 Education:**
- Consider using $5-10K from available License Plate funds to hire a childhood education expert to:
- Collect and organize appropriate existing curriculum materials into a Tampa Bay environmental module
- Using organized curriculum materials, develop a ‘Tampa Bay environmental summer camp package’ for use by anyone. Package will be posted on the TBEP website and available for distribution (DVD, materials).

✔️ **Progress since 2014:**

- In summer 2014, education expert to conduct an environmental pilot module with local government summer camp program (St. Petersburg has volunteered).
- Tampa Bay environmental summer camp curriculum developed in 2015
- ‘Train the trainer’ workshops held in Pinellas and Hillsborough counties
- Camp curriculum distributed to local government recreation departments throughout watershed
- Posted on TBEP website “Teachers Corner” page

**Summary**

Campers will learn about litter and its impacts to the environment. They will also use their imaginations to create a Recycla-saurus and discuss how their creations will handle recycling issues.
Policy Board members (August, 2016):

Commissioner Robin DiSabatino - **Chair** - Manatee County
Commissioner Charlie Justice - **Vice Chair**—Pinellas County
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Mr. Alex Awad - City of Tampa

Mr. Sean Sullivan – TBRPC
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Mr. Andy Squires - Pinellas County
Ms. Juanita Bernal - Pasco County
Dr. Amber Whittle - FWC/FWRI
Ms. Cindy Torres - FDEP
Mr. Tim MacDonald – TAC Co-Chair
Ms. Kelli Levy - TAC Co-Chair
Mr. Santino Provenzano - NMC Co-Chair
Mr. Jim Igler – CAC Co-Chair
Mr. David Westmark – CAC Co-Chair
Acknowledgements:
TriSect
Management Board
Policy Board

Commemorative photo for TBEP’s 20th Anniversary

Photo by Peter Lousberg

Tampa Bay Estuary Program
263 13th Avenue South
Suite 350
St. Petersburg, Florida 33701
www.tbep.org
Phone: (727) 893-2765
Community Advisory Committee Report  
May, 2017

Among the CAC’s activities 2nd quarter (January through March, 2017):

- Jan Allyn, Harry Cunningham, III, Marjorie Karvonen, Cathy Quindiagan, Christine Sciarrino, and David Westmark attended Give-A-Day for the Bay at Boyd Hill Nature Park in St. Petersburg  
  Total = 6 x 4 hours = 24 hours

- Jan Allyn and Nadine Nickeson attended Give-A-Day for the Bay at Safety Harbor Restoration Area in Pinellas County  
  Total = 4 x 4 hours = 16 hours

- Harry Cunningham, III, and David Westmark attended Give-A-Day for the Bay at Lake Lisa Park in Pasco County  
  Total = 2 x 4 hours = 8 hours

- Jan Allyn, Sue Brandon, Marjorie Karvonen, and Kristin Lehman sent an e-mail message to the 2017 Legislative delegation to support the specialty license plate.  
  Total = 4 x .5 hour = 2 hours

- Jan Allyn and Jim Igler shared #iheartestuaries social media messages.  
  Total = 2 x .5 hours = 1 hour

- Jan Allyn distributed TBEP materials at Pinellas County Eco Fun Fest.  
  Total = 1 x 4 hours = 4 hours

- David Westmark and Tra James attended two (2) CAC planning meetings.  
  Total = 4 x 2 hours = 8 hours

- Jim Igler and David Westmark attended an ABM meeting.  
  Total = 2 x 4 hours = 8 hours

- Tra James and David Westmark attended Management and Policy Board meetings.  
  Total= 2 x 5 hours = 10 hours

- David Westmark updated the CAC Facebook account to keep members informed of community events and opportunities (a closed group for CAC members only).  
  Total= 1 x 2 hours = 2 hours

Total CAC contributions for this quarter were 83 hours
What is “Give-A-Day for the Bay?”

“Give A Day For The Bay” involves community volunteers working side by side with bay managers to improve natural habitats in the Tampa Bay ecosystem.

Activities include:
- Removing invasive plants such as Brazilian pepper and air potato
- Planting native trees, grasses and wildflowers
- Cleaning up trash from shorelines
- Conducting wildlife and plant surveys

All volunteers receive lunch

www.tbep.org
Be A Part Of The Solution
Join the 2016-2017 “Give-A-Day For The Bay” team today!

September 24, 2016
CELEBRATING NATIONAL ESTUARIES WEEK
Robinson Preserve, Manatee County
Moccasin Lake Nature Park, Clearwater

November 12, 2016
Rock Ponds, Hillsborough County

December 10, 2016
Cockroach Bay, Hillsborough County

January 14, 2017
Boyd Hill Nature Park, St. Petersburg

March 18, 2017
Lake Lisa Park, Pasco County

April 15, 2017
Keep Pinellas Beautiful site, Pinellas

Tampa Bay Estuary Program
Sign up at: www.tbep.org
Email: misty@tbep.org
Phone: (727) 893-2765

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Introduction:

These activities and curriculum are for Tampa Bay area summer camps. The activities’ themes focus on the Tampa Bay ecosystem and associated habitats, including the local plants and wildlife. The Background sections and additional resource sections provide summer camp staff the information necessary to complete the activity. Extensive knowledge about Tampa Bay ecology is not necessary; however, personal experience and/or expertise of individual camp staff would be a welcome addition to the activities. None of the activities was created assuming the participating summer camp locations have direct access to the coastal communities of Tampa Bay. All activities could be conducted by summer camp staff at any summer camp location regardless of existing amenities at their specific location (e.g., in available gymnasiums, recreation rooms, basketball/tennis courts, outdoor open areas, natural areas, etc.).

If summer camp staff desire additional resources to supplement their personal knowledge level and understanding of Tampa Bay ecology, resources are included. There are also abundant internet resources available such as the Tampa Bay Estuary Program (http://www.tbep.org/), the Southwest Florida Water Management District (http://www.swfwmd.state.fl.us/) specifically the publications and education links, the Florida Fish and Wildlife Conservation Commission (http://www.myfwc.com/), and the Florida Department of Environmental Protection (http://www.dep.state.fl.us/). These sites tend to have information specific to Florida and/or the Tampa Bay area; however, there are also university websites and Federal agency sites such as the U.S. Fish and Wildlife Service (http://www.fws.gov/) and the National Oceanic & Atmospheric Administration’s National Marine Fisheries Service (http://www.nmfs.noaa.gov/).

We hope that Tampa Bay area summer camps enjoy using these activities and we encourage the adaption of these activities to fit each camp’s own specific location parameters and campers.
Summary

Campers will actively find their matching wildlife card pair. After finding their matching wildlife card pair, campers will identify and connect wildlife to the diverse habitats in the Tampa Bay ecosystem including discussions about the animals’ natural history and opportunities for environmental stewardship.

Objectives

Campers will:

• Match their wildlife half-card with another camper's matching half card
• Try and correctly identify their Tampa Bay animal
• Answer the animal natural history questions on the back of each card to the best of their ability.
• As a group, discuss a few or all of the animals as time allows.

Estimated Time for Activity

• 45 – 60 minutes

Materials

• Print 22 Tampa Bay wildlife cards, double-sided and cut in half.
  o 22 sheets of 8.5” x 11” photo paper or white cardstock
  o Optional - 22, 8.5” x 11” self-adhesive lamination sheets
  o Scissors or cutting board
• First print questions (1 page) on each of the 22 cards.
• Next, print the wildlife images (pages 1-22) on the backs of the cards.
• Write the corresponding wildlife number from the answer key only on the left-half of the 8.5” x 11” card. If you write this number on both halves, the campers will quickly realize to only look for their number thereby not using the wildlife image and their observation skills to find their other wildlife half.
• Optional - Prior to cutting, the cards could be laminated for long-term use.
• 22 wildlife cards allow 44 youths to participate.
  o If you have 22 youths or fewer, you may want to do this activity twice during the week; use the more commonly known wildlife earlier during camp (e.g., raccoon, bottlenose dolphin). Then later after the campers have learned about more wildlife, use the less commonly known wildlife cards (e.g., Eastern oysters, mangrove salt marsh snake, double-crested cormorant).

Setting

This activity can be conducted either indoors or outdoors.
Vocabulary and Concepts

Estuary, brackish water, habitat, beach, shoreline, mud flat, oyster bar, sandy bottom, sea grasses, open water, predator, prey, detritus, wildlife vs. domestic animals, Florida wildlife vs. captive animals (e.g., zoos, aquariums, etc.), native vs. nonnative vs. nonnative invasive species (Extension Activity)

Background

The Tampa Bay ecosystem is home to diverse wildlife including birds (wading birds, diving birds, shorebirds, raptors, songbirds, etc.), reptiles, amphibians, fish, invertebrates (insects, bugs, snails, bi-valves, marine worms, etc.), and mammals (aquatic and land mammals). Some of these animals live here year-round, while others migrate through on a seasonal basis. Regardless, all of our Tampa Bay wildlife depend on the healthy habitats found throughout the Tampa Bay area.

Tampa Bay is a large estuary surrounded by Pinellas, Hillsborough and Manatee counties. Estuaries are areas where saltwater and freshwater meet and mix together. Estuaries are sometimes referred to as brackish waterways as they are typically not as “salty” as the neighboring ocean or gulf, but the water does contain salt, so it cannot be classified as a freshwater system.

The amount of actual salt (salinity) in the water can fluctuate daily, seasonally, or yearly. Major salinity influences on the salinity in Tampa Bay include the daily and seasonal tidal flows and the amount of freshwater entering Tampa Bay. Most of the freshwater entering the estuary is from springs, rivers, rainfall, and runoff from roadways, rooftops, yards, parking lots, storm drains, etc. Because of the rainfall’s influence on the bay salinity, Florida’s rainy season from June through September typically lowers the salinity compared to our dry season October through May when we typically do not receive as much rainfall.

Humans can also influence the salinity of Tampa Bay by increasing or decreasing the amount of freshwater we divert and use prior to it reaching the bay. We divert freshwater from the rivers for drinking water, irrigation, agriculture, etc. that would normally flow into Tampa Bay. We also pump ground water, use or divert water that would recharge the ground water system, which ultimately can influence the salinity in Tampa Bay. Fortunately, there are rules and regulations, and state and federal agencies that are specifically tasked with monitoring and regulating the freshwater systems so that human needs, wildlife needs and habitats’ needs are balanced so that all receive adequate freshwater. This balance of freshwater use is critical for all species’ survival and is often a difficult and complex process.

The actual Tampa Bay waterbody (e.g., the body of water labeled “Tampa Bay”) supports aquatic habitats such as sea grass meadows, mudflats, beaches and shorelines, mangrove forests (red, black, and white mangroves), and saltwater marshes. However, the Tampa Bay ecosystem includes all the habitats found within the Tampa Bay waterbody including freshwater marshes and the adjacent terrestrial (land) habitats such as upland forests (pine flatwoods, palms, and oak hammocks). This mosaic of terrestrial and aquatic habitats provides excellent nesting, foraging, roosting, and resting areas for all of our resident and migratory wildlife. In fact, some animals such as the
white ibis (bird) can live easily in the saltwater or freshwater habitats; however, breeding adults must have access to freshwater marshes and ponds to catch fish to feed their young as the small fish in saltwater and brackish water systems are too “salty” for the young white ibis to eat.

Activity

Begin the activity by asking the campers what types of animals are found in the Tampa Bay area (e.g., birds, fishes, mammals, invertebrates, reptiles, etc.). Next, ask where do these animals live? In the actual water of Tampa Bay (e.g., fish, bottlenose dolphin)? Along the shallow edges of the water (e.g., like our long-legged birds, the herons and egrets)? In and around the marsh grasses and shrubs (e.g., mangrove salt marsh snake, white ibis)? This discussion is only meant to initiate the activity, children often have elaborate stories or imaginations about wildlife and this introductory discussion could easily take longer than the few minutes intended. These introductory questions are meant to get the campers thinking about the local wildlife and get excited about the upcoming activity.

Also, keep in mind that children have vast resources available to them and are often not aware that the lions, tigers, grizzly bears, polar bears, penguins, kangaroos, etc. that they see on television shows and other forms of media are not found living wild here in the Tampa Bay area. Please refer to the resources and resource links provided if you would like additional guidance and ideas of wildlife found specifically in the Tampa Bay area. Appreciation and respect for native Tampa Bay wildlife and their habitats is the ultimate goal. If the campers are familiar and interested about wildlife in foreign countries or continents, this is an opportunity for them to direct their wildlife passion to animals they can learn about and observe within their Tampa Bay community.

1. Pass out one-half of a picture card to each camper. If there are an odd number of campers, you may let them match up in “threes” or assign one of the adult chaperones/camp councilors to be a participant.

   a. Suggestion: Make sure to mix or separate half-cards so that you are not handing out the head of an animal to one camper and the matching tail of that same animal to a camper sitting nearby. You want the campers interacting, asking questions, and moving around in search of their matching cards.

2. Allow the campers enough time to circulate around the activity area and find their matching pair. Encourage campers to find their partners on their own, but also watch and help facilitate campers finding one another as needed.
3. Once they find their matching pair, you may want to have them sit down together and quietly discuss the answers to the questions on the backs of their cards. This also makes it easier to determine which campers are still in search of their matching card.

4. Once everyone has found their wildlife card partner, discuss as a group each wildlife species on the cards or highlight only a few animal cards as time allows. Ask either the whole group or those campers with the specific cards if they can name the animal. Discuss the questions on the back of the paired cards including adding any additional information (you may have factual personal experience, learned interesting facts during an environmental training, etc.). Keep the information flowing and be sure to stick with facts—avoid and debunk myths and false teachings that are detrimental to wildlife and the environment (e.g. sharks are “man eaters,” the only good snake is a dead snake, etc.).

**Extended Activity**

After the campers have identified all of Wildlife Connection cards, you can ask the campers if these animals are native or nonnative (a.k.a. exotic). First, explain what is a native species and a nonnative species then share how various nonnative species have arrived in Florida.

**Background: Native & Nonnative Species:** Native species are wildlife and plants originally from an area in this case Tampa Bay, Florida. Although there is not an agreed upon exact date (January 2, 1500), native species are plants and animals thought to be in Florida prior to the arrival of the European explorers. Remember, the early explorers often brought plants and animals from their home lands so they could guarantee having something to eat or live off—items with which they were familiar. Consequently, when the explorers left, even if only temporarily, they often left the animals and plants behind for either their return trip or for future explorers.

In general, it is thought that animals and plants that were naturally found in Florida prior to the 1500’s are native species. Animals and plants that arrived in Florida either naturally on their own (e.g. coyote, nine-banded armadillo, cattle egret through human-caused habitat changes), or brought by humans (citrus, wild hog, European starlings), or some other means (e.g. red imported fire ants and citrus rats via boats) after the 1500’s are considered nonnative.

Nonnative species have created numerous problems for our native Florida animals and plants. Since nonnatives are not originally from Florida, they often lack their traditional predators, diseases and other natural population controls existing in their native lands. This competitive edge often allows them to crowd out or survive better than our native species, changing the natural habitats, species diversity and sometimes even the ecosystems’ function. This is kind of like a bully on the playground taking over every toy and all of the swings, slides and fun equipment causing everyone else to leave. When this happens, the nonnative species’ status (classification) changes from nonnative to nonnative invasive.
Tampa Bay Wildlife and Habitat Connections

In Florida and the United States nonnative invasive species have become such a problem and expense to taxpayers, rules have been adopted and laws passed that prohibit the possession, transport, or propagation of certain nonnative species.

You may want to conduct some investigations of your own prior to discussing the ideas of native versus nonnative species. It is an interesting topic that is always changing. There are continually more plants and animals being imported into the United States; there is often debate even within the scientific community about native versus nonnative designations; and with climate change, these nonnative invaders are on the move.
**Tampa Bay Wildlife and Habitat Connections**

"Tampa Bay Wildlife and Habitat Connections" Activity - Card Species List – Answer Key
Tampa Bay Estuary Program Summer Camp Curriculum

<table>
<thead>
<tr>
<th>Animal Name</th>
<th>General Classification</th>
<th>Where do I live?*</th>
<th>Predator?</th>
<th>Or Prey?</th>
<th>Indigenous Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anhinga</td>
<td>Bird</td>
<td>Estuary; rests in shrubs/trees along water's edge; fishes in open water</td>
<td>Yes, diet is fish</td>
<td>Yes, most likely when egg or young still in nest</td>
<td>native</td>
</tr>
<tr>
<td>Black Skimmer</td>
<td>Bird</td>
<td>Estuary; nests and rests on beach; fishes by flying while &quot;skimming&quot; bill along shoreline</td>
<td>Yes, diet is fish</td>
<td>Heavily preyed upon as egg or young (raccoons, gulls, crows, herons); raptors may eat adults too</td>
<td>native</td>
</tr>
<tr>
<td>Osprey</td>
<td>Bird (raptor)</td>
<td>Estuary; rests in shrubs/trees along water's edge; nests in snags; fishes by diving into sea grasses and in open water</td>
<td>Yes, 98% diet is fish</td>
<td>Yes, most likely when egg</td>
<td>native</td>
</tr>
<tr>
<td>Southern Puffer Fish</td>
<td>Fish (bony)</td>
<td>Estuary; mud flat; sea grasses; oyster bar; sandy bottom (not preferred); open water (not preferred)</td>
<td>Yes</td>
<td>Yes</td>
<td>native</td>
</tr>
<tr>
<td>Laughing Gull</td>
<td>Bird</td>
<td>Estuary; rests on beach; nests in dunes; forages shoreline, mud flat, sea grasses when low tide exposes them and open water</td>
<td>Yes, eats live prey as well as scavenges</td>
<td>Yes, most likely when egg or before adult</td>
<td>native</td>
</tr>
<tr>
<td>Mangrove Salt Marsh Snake</td>
<td>Reptile (snake)</td>
<td>Estuary; rests and hunts in shrubs / trees along water's edge; also hunts and swims in shallow water</td>
<td>Yes</td>
<td>Yes</td>
<td>native</td>
</tr>
<tr>
<td>Cownose Ray</td>
<td>Fish (cartilaginous)</td>
<td>Estuary; shoreline water; hunts in sea grasses, around oyster bars, and sandy bottom; open water</td>
<td>Yes</td>
<td>Yes</td>
<td>native</td>
</tr>
<tr>
<td>Gulf Fritillary Butterfly</td>
<td>Invertebrate (insect)</td>
<td>Estuary; nectars beach plants and may rest in shrubs/trees along water's edge; flies shoreline and migrates over open water (migrates over &quot;Gulf of Mexico&quot; = &quot;Gulf&quot; Fritillary)</td>
<td>No, eats nectar</td>
<td>Yes</td>
<td>native</td>
</tr>
<tr>
<td>Lightning Whelk &amp; Egg Cases</td>
<td>Invertebrate (mollusk)</td>
<td>Estuary; mud flat; sea grasses; oyster bar; sandy bottom; open water</td>
<td>Yes, throughout life</td>
<td>Yes, throughout life</td>
<td>native</td>
</tr>
</tbody>
</table>
# Tampa Bay Wildlife and Habitat Connections

<table>
<thead>
<tr>
<th>Animal Name</th>
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</tr>
</thead>
<tbody>
<tr>
<td>10 Nine-banded Armadillo</td>
<td>Mammal</td>
<td>Estuary; forages soil mostly for invertebrates in beach, dune, and shrub/tree habitats; dens underground in coastal habitats that don't frequently flood (higher ground)</td>
<td>Yes, diet is mostly invertebrates (e.g., worms, grubs, ants, etc.)</td>
<td>Yes, most likely when young and shell is still soft</td>
<td>non-native</td>
</tr>
<tr>
<td>11 Fiddler Crab</td>
<td>Invertebrate (crustacean)</td>
<td>Estuary; shoreline; mud flat</td>
<td>No, typically eats detritus (decaying plant and animal matter)</td>
<td>Yes</td>
<td>native</td>
</tr>
<tr>
<td>12 Bottlenose Dolphin</td>
<td>Mammal</td>
<td>Estuary; sea grasses; oyster bar; sandy bottom; open water</td>
<td>Yes, diet is fish</td>
<td>Yes, but not often. Most likely when young (e.g., sharks)</td>
<td>native</td>
</tr>
<tr>
<td>13 Raccoon</td>
<td>Mammal</td>
<td>Estuary; beach; shoreline; mud flat; sea grasses; oyster bar; will swim across open water to another location</td>
<td>Yes, throughout life (generalist--eat almost anything)</td>
<td>Yes</td>
<td>native</td>
</tr>
<tr>
<td>14 Marsh Rabbit</td>
<td>Mammal</td>
<td>Estuary; coastal grasses, shrubs and trees including along water edge; will readily swim open water to avoid predators or to travel</td>
<td>No--eats plants</td>
<td>Yes</td>
<td>native</td>
</tr>
<tr>
<td>15 Florida Manatee</td>
<td>Mammal</td>
<td>Estuary; shoreline/very shallow water when mating; feed on sea grasses; open water</td>
<td>No--eats plants</td>
<td>Yes, but not often. Most likely when young (e.g., sharks)</td>
<td>native</td>
</tr>
<tr>
<td>16 Green Sea Turtle</td>
<td>Reptile (turtle)</td>
<td>Estuary; females nest on beach; sea grasses; open water</td>
<td>No--eats plants</td>
<td>Yes, from egg through adult (e.g., raccoon, ghost crab, gulls, fish including sharks, etc.)</td>
<td>native</td>
</tr>
<tr>
<td>17 Dragonfly</td>
<td>Invertebrate (insect)</td>
<td>Estuary; hunts insects when flying in coastal areas (must lay eggs in freshwater where larvae grow then emerge as adults)</td>
<td>Yes, other invertebrates</td>
<td>Yes</td>
<td>native</td>
</tr>
<tr>
<td>18 Brown Anole</td>
<td>Reptile (lizard)</td>
<td>Estuary; coastal grasses, shrubs and trees including along water edge</td>
<td>Yes, other invertebrates</td>
<td>Yes</td>
<td>nonnative invasive</td>
</tr>
<tr>
<td>Animal Name</td>
<td>General Classification</td>
<td>Where do I live?*</td>
<td>Predator?</td>
<td>Or Prey?</td>
<td>Indigenous Status</td>
</tr>
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<td>-----------------------------</td>
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</tr>
<tr>
<td>Double-crested Cormorant</td>
<td>Bird</td>
<td>Estuary; rests on beach and shoreline, in shrubs / trees along water's edge; fishes sea grasses, oyster bars, sandy bottom, and open water</td>
<td>Yes, diet is fish</td>
<td>Yes, most likely when egg or young still in nest</td>
<td>native</td>
</tr>
<tr>
<td>Eastern Oysters</td>
<td>Invertebrate (mollusk)</td>
<td>Estuary; oyster bar; open water (young oysters, called spat, need hard substrate like other oysters to cling to for growing)</td>
<td>No, filter feeder</td>
<td>Yes</td>
<td>native</td>
</tr>
<tr>
<td>Horseshoe Crab</td>
<td>Invertebrate (arthropod--closer related to arachnids, e.g., spiders, than crustaceans, e.g., crabs, lobsters)</td>
<td>Estuary; shoreline; sea grasses; sandy bottom; open water (deep water migrant species)</td>
<td>Yes, eats invertebrates (e.g. crustaceans, clams, marine worms)</td>
<td>Yes, especially as eggs. It is a critical food source for migrating birds (e.g., red knots)</td>
<td>native</td>
</tr>
<tr>
<td>Great Blue Heron</td>
<td>Bird</td>
<td>Estuary; rests and nests in shrubs/trees along water's edge; beach; shoreline; mud flat; sea grasses; sandy bottom; shallow open water</td>
<td>Yes, eats almost any animal (bird, fish, snake, turtle, lizard, crab, etc.)</td>
<td>Yes, most often when egg or young still in nest</td>
<td>native</td>
</tr>
</tbody>
</table>

*Some of these animals may also use freshwater ecosystems and uplands. This activity focuses on the typical estuary habitats for these animals, but animals move and do not always “follow the rules.”
What can you do to help?

- Don't litter
- Pick up litter
- Collect and recycle fishing (monofilament) line
- Throw away or recycle plastic bags
- Always follow fishing regulations
- Report injured wildlife
- Keep your cats inside--protect their lives and save wildlife lives
- Don't ever chase resting or nesting birds
- Walk around birds resting on the beach--don't make them move
- Help local organizations remove crab "ghost traps" when legally allowed
- Don't feed wildlife--keep them wild
- Plant native plants in your yard and schoolyard
- Scoop the (dog) poop
- Always stay on trails and follow the rules where you are
- Don't injure plants by breaking branches or picking leaves
- Always keep your pets on a leash; don't ever let them chase wildlife
- Be a safe boater and avoid hurting wildlife homes and food like sea grasses
- Avoid using pesticides when possible
- Remove invasive exotic plants and animals
- Avoid getting too close to wildlife. If they change what they are doing when you are near...back up, you are too close!
- Follow fertilizer rules; don't fertilize lawns in the summer and always follow label directions
- Never collect live animals still in their shells (and look for crabs using these shells too)
- Leave nature a cleaner, better place than how you found it
- Nicely share with others how to respect wildlife and their homes
- Know that your actions matter--make the right choices!

Write Campers' Other Ideas Here:

1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 
9. 
10. 
11. 
12. 
13. 
14. 
15. 
Who Lives in the Mangroves?

Summary

Campers will learn the importance of our incredible saltwater forests, the mangroves, and learn about the many wildlife species that call the mangroves home.

Let’s go on a scavenger hunt quest! Campers conduct a “mangrove forest” scavenger hunt searching for these fascinating mangrove inhabitants. Afterwards, as a group they will discuss the values of mangroves and all functions they provide for our wildlife (food, shelter, space).

Objectives

Campers will:

- Participate in a scavenger hunt by locating animals using the mangroves
- Identify the animals they found in the mangroves
- Campers will relate and discuss why the mangroves are important to their discovered species

Estimated Time for Activity

Approximately 45 – 60 minutes

Materials

- 25 – 30 small photos, drawings, plastic models and replicas of mangrove animals.
  - Suggestions: Some toy companies have inexpensive miniature replicas of animals found in coastal systems and mangroves; use clip art; have volunteers or interns draw the animals; collect used magazines and cut out images.
- Paper to write down # of scavenger hunt items and where they were hidden
- Reusable container(s) to store scavenger hunt items

Potential Scavenger Hunt Items

Invertebrates – Mangrove crab, blue crab, fiddler crab, Gulf fritillary butterfly, dragonfly, mosquito, periwinkle snail, barnacle, clam, shrimp, sponge, oyster

Birds – Great blue heron, little blue heron, snowy egret, brown pelican, yellow-crowned night-heron, black-crowned night-heron, roseate spoonbill, belted kingfisher, osprey, great egret, least tern, royal tern, cormorant, white ibis, mangrove cuckoo

Fishes – Tarpon, snook, mullet, pinfish, killifish, redfish, black-tipped shark, anchovy, sheepshead, southern stingray, cownose ray

Mammals – Raccoon, bottlenose dolphin (hunting a mangrove/water edge), Virginia opossum, Florida manatee, marsh rabbit, river otter, Brazilian free-tailed bat
Who Lives in the Mangroves?

Reptiles – Mangrove salt marsh snake (nonvenomous), Florida cottonmouth snake (venomous), eastern diamondback rattlesnake (venomous), green anole, diamondback terrapin (estuarine turtle), sea turtles (swimming around mangrove islands)

❖ Setting

This activity can be conducted either indoors or outdoors.

❖ Vocabulary and Concepts

Mangrove swamp, drop root, prop root, pneumatophores

❖ Background

Mangrove swamps are one of the most productive ecosystems in Florida providing food and shelter for numerous coastal animals. Mangrove swamps lining our local estuaries provide filtration by absorbing nutrients before they flow into Tampa Bay as well as provide a dynamic erosion barrier by stabilizing our estuarine shorelines.

In Tampa Bay, the three types of mangrove trees are the red, black, and white mangroves.

Red mangroves – distinctive “walking” roots sprawling outward typically along the water’s edge. Their prop roots and drop roots not only help stabilize the plant in their sandy/muddy habitat, but they help protect shoreline erosion acting as a barrier against the crashing waves. Even though red mangroves are typically found in brackish and along the brackish water’s edge, red mangroves do not like salt. They have a specialized approach drinking in only the freshwater and preventing the salt from entering their roots. Their large leaves are pointed and dark green on top with lighter/yellow-green undersides.

Black mangroves – obvious “fingers” (pneumatophores) sticking up through the shoreline’s mud. These “fingers” are part of their root structure helping stabilize the plant in this muddy environment and serving as a snorkel by allowing them to take in necessary oxygen from the air. Black mangroves are typically found farther back towards the land from the water’s edge behind the outer red mangrove fringe. Black mangrove leaves are pointed and dark, flat-green on top and silvery/light green underneath. If it has not rained for a few days, you should be able to see the black mangrove leaves covered with salt crystals. Unlike the red mangrove, black mangroves readily drink the salt water only to excrete the salt through their leaves.

White mangroves – lack the distinctive root structures of the red and black mangroves; however, close investigation of their leaves will provide their identification clues. Their leaves are more oval shaped than the red and black mangrove leaves and the white mangrove leaves are almost the same light green/lime green color on both the top and
Who Lives in the Mangroves?

bottom sides. The leaf tip is typically indented, think “dip in the tip,” and you will notice a pair of tiny bumps, or glands, at the base of each leaf.

Sometimes you may hear the mangroves described by the color of their bark—red, black, and white. However, young trees may not have these colors; red mangroves were actually named after the color of wood under the bark, not to mention the added colors of the prolific lichens growing on the mangrove bark. The two distinct root structures and the dip in the tip are consistently better identification indicators. For additional information, please refer to the resources section.

❖ Activity

1. Hide the photos or toy replicas. If indoors, use available bookshelves or indoor plants as imaginary mangroves. These will also give the campers an idea how small animals can really hide in the mangroves.
   o Remember, always count the items you hide for the scavenger hunt (either total number or number per animal). Even though the scavenger hunt is trying to teach campers about mangroves in a fun activity, items left outside unattended become litter and could potentially harm real wildlife.

2. Begin discussing what a mangrove swamp is and do they think the mangroves may be important. If so, why?

3. Ask the campers if anyone has been in a mangrove swamp and if so, where were they? Were they on a boardwalk or trail or in a kayak or canoe? A school field trip? What animals, if any, did they see?

4. Now it is time for everyone to enter the important “mangrove forest”—begin the scavenger hunt quest!
   a. You could operate the scavenger hunt as a contest and award points for the items located (e.g., roseate spoonbill (bird) is worth 10 points, tarpon (fish) is worth 100 points, mangrove crabs are worth 5 points each …)

      Or, you could assign campers to teams that search for specific wildlife types (e.g., Team A searches only for birds, Team B searches only for fish…)

5. After all, of the wildlife animals are collected have each camper select his favorite mangrove animal and as a group discuss how the mangroves are important to that animal’s survival.
Color it Right!

❖ Summary

Today’s and tomorrow’s ecosystems need environmentally knowledgeable residents and visitors. If each person were to reduce at least some of their negative impacts on nature it would make a large positive impact. Campers will help one another decide how we should or shouldn’t behave when exploring nature.

❖ Objectives

Campers will:

- Brainstorm the “right ways” and the “wrong ways” to behave when outdoors exploring nature.
- Look at the two coloring activity pages; decide what are the right and wrong ways for behaving in nature that are shown; write their answers on the pages.
- Color the activity pages.

❖ Estimated Time for Activity

Approximately 60 minutes

❖ Materials

- 1 “Not a Fun Day in Tampa Bay!” coloring activity sheet per camper
- 1 “A Fun Day in Tampa Bay!” coloring activity sheet per camper
- Crayons or colored pencils
- Hard surface for coloring activity—tables, desks, clip boards, etc.
- Dry erase board, chalkboard or large flip chart pad with easel

❖ Setting

This activity can be conducted either indoors or outdoors.

❖ Vocabulary

Recycle, litter, native, nonnative (a.k.a. exotic), nonnative invasive (a.k.a. invasive exotic), habitat, pesticide, fertilizer, wildlife (vs. domestic pets)

❖ Background

With approximately 2 million people living in the Tampa Bay area and many more visiting, the natural habitats and wildlife that also live here depend on us to act respectfully and make positive choices so that the area is healthy today as well as tomorrow. This activity will help accentuate what positive behaviors we should encourage and what negative behaviors we should avoid. Knowing how to behave in natural areas is not instinctual; instead it is a learned behavior that needs to be fostered.
Color it Right!

Activity

As a group, brainstorm the “right ways” and the “wrong ways” to behave when outdoors exploring nature. Under the corresponding column name, write these ideas down for everyone to see. If Camp Counselors have any additional suggestions, ask if they can be shared too. Below are examples of how to behave. Doing the opposite creates a list of ways we should not behave.

Right Ways to Behave when Outdoors Exploring Nature – Examples

- Don’t litter
- Pick up litter
- Collect and recycle fishing (monofilament) line
- Throw away or recycle plastic bags
- Always follow fishing regulations
- Report injured wildlife
- Keep your cats inside—protect their lives and save wildlife lives
- Don’t ever chase resting or nesting birds
- Walk around birds resting on the beach—don’t make them move
- Help local organizations remove crab “ghost traps” when legally allowed
- Don’t feed wildlife—keep them wild
- Plant native plants in your yard and schoolyard
- Scoop the (dog) poop
- Always stay on trails and follow the rules where you are
- Don’t injure plants by breaking branches or picking leaves
- Always keep your pets on a leash; don’t ever let them chase wildlife
- Be a safe boater and avoid hurting wildlife homes and food like sea grasses
- Avoid using pesticides when possible
- Remove nonnative invasive plants and animals
- Avoid getting too close to wildlife
- If they change what they are doing when you are near…back up, you are too close!
- Follow fertilizer rules; don’t fertilize lawns in summer and always follow label directions
- Never collect live animals still in their shells (and look for crabs using these shells too)
- Leave nature a cleaner, better place than how you found it
- Nicely share with others how to respect wildlife and their homes
- Know that your actions matter—make the right choices!

After everyone has had a chance to share at least one of their ideas, go through the behaviors to clarify meanings, verify if the group wants to keep each one or any edits that might be made.

Give one of each of the coloring activity pages to each camper. Explain that the campers are to fill in the blanks at the bottom of each coloring activity page while remembering some of the ideas previously shared as a group.
Color it Right!

For younger campers, the words can be read to the campers and then Camp Counselors walk around to each camper and help them write their answers.

Next, have the campers color the activity pages.

❖ Extended Activity

- Conduct the activity again while brainstorming the “right ways” to behave to help nature and the “wrong ways” to avoid that hurt nature when at home, in the backyard, at school or playing in the neighborhood.
  - **At Home:**
    - take showers instead of baths
    - shorten showers
    - turn off water while brushing teeth
    - never waste food
    - always keep cats inside for their safety and wildlife’s safety
    - always recycle cans, paper, plastics, milk and juice cartons
    - help family members choose nature-friendly behaviors too
  - **Backyard:**
    - remove nonnative grass and replace it with native plants creating wildlife habitat
    - water yard less
    - put up bird nest boxes
    - use fewer, or better yet no pesticides and fertilizers
    - remove nonnative invasive plants
    - plant trees to shade house roof
    - learn about the wildlife that visits your yard
    - scoop pet poop
  - **At School:**
    - start or join an environmental club
    - learn about the wildlife that shares the schoolyard with you
    - pick up at least 1 piece of litter every day and encourage friends to do this too
    - never waste food at lunch
    - always recycle cans, plastics, paper
    - plant native plants
    - remove nonnative invasive plants
    - help friends and other schoolmates to choose nature-friendly behaviors too
  - **In Neighborhood:**
    - pick up at least 1 piece of litter every day and get your friends to do this too
    - always walk dog on leash
    - scoop your pet’s poop
    - learn about the wildlife that shares the neighborhood with you
    - adopt a neighborhood park
      - remove litter
      - remove nonnative invasive plants
Color it Right!

- plant native plants to give wildlife homes, food and shelter
- put up educational signs explaining how others should act while in the park that will help nature

- Encourage the campers to draw themselves doing a positive outdoor behavior that they are going to pledge to start doing. Have them write at the top of the activity page, “I pledge to start/stop ____________ to help Tampa Bay.”
- Write the list of pledges next to each camper’s name and post it on the wall for the duration of camp.
- When they are picked up that day, suggest the camper show their parent or guardian their drawing with the pledge.
Recyc-la-Saurus

❖ Summary

Campers will learn about litter and its impacts to the environment. They will also use their imaginations to create a Recyc-la-saurus and discuss how their creations will handle recycling issues.

❖ Objectives

Campers will:

- Learn that many recyclable items have “lifespans” longer than most humans.
- Learn that during the “lifespan” of litter, it often harms wildlife, plants and the health of our water.

❖ Estimated Time for Activity

Approximately 45 – 60 minutes

❖ Materials

- Glue
- Tape
- Markers
- Rulers
- Scraps of colored paper (hopefully, rescued from the recycling bin)
- Anything that is in the recycling bin, including rinsed plastic water bottles, plastic bottle caps, cans without sharp edges, paper towel and toilet paper cardboard rolls, small to medium cardboard boxes, etc.
  - You may want to stock pile items prior to camp or you could have the campers bring in their own clean recyclable products.
  - Check with framing companies or local photographers to ask if they have any photo mat scraps.
  - Ask friends and family members to save any nature-related magazines for campers to flip through to get ideas for their creature.
- Newspapers (for protecting the tables and floor from spilled glue, runaway markers, etc.)
- Optional - water-based craft paint

❖ Setting

This activity can be conducted either indoors or outdoors.

❖ Vocabulary

Recycle, litter, recyclable, decompose, biodegradable, monofilament line (a.k.a. fishing line), ghost traps; 4 Rs: reduce, reuse, recycle, and refuse
Recyc-la-Saurus

❖ Background

Litter comes in many shapes and sizes. Some items like cigarette butts, soda cans, water bottles, broken balloon fragments, and fast food wrappers are easy to distinguish.

Other litter items may not be as obvious. What about the banana peel or apple core that was thrown out? They are biodegradable after all. However, just because something is biodegradable does not mean it is not litter. Unlike polypropylene (Styrofoam), most things are biodegradable…it just takes time. And some things take a really long time. Therefore, items that are tossed into the environment are litter, quickly biodegradable or not. Don’t be a litterbug.

Fortunately, litter is one thing that everyone can reduce. People who litter can easily stop; and everyone can pick up at least one piece of litter each day. Even better, many litter items can actually be recycled. Not only will the picked up litter be eradicated from the environment, in our case the Tampa Bay ecosystem, but much of it can be recycled keeping it out of our already over-crowded landfills. With approximately 2 million people living in the Tampa Bay area, that is 2 million pieces of litter removed from nature each day. Wow!

❖ Activity

Engage the campers in a discussion about litter. Ask what they think litter is. What about something like an apple core? Is that litter? If they say no, ask if throwing a piece of paper down is littering. If they say yes, ask how is throwing an apple core down any different than throwing down a piece of paper? They both will take almost the same amount of time to decompose.

Ask the campers where do they think the trash from the trash can goes. Get them to realize that it doesn’t “disappear;” it is buried at a landfill that will be there forever. Some counties, like Pinellas County, do burn an amount of their trash at a special facility that creates energy from trash and then the rest is dumped into a landfill.

Share with the campers that the earth’s human population is always growing. Ask if this continues, where will all of the people live? Will there be enough space? Where will the natural areas with their plants and wildlife live if the world continues to be filled with people? Without raising too many concerns about this issue, bring the conversation back to litter and landfills. Ask if they think with people, plants and wildlife needing space, can we afford to waste land by filling it with our trash? NO!

What can we do to reduce our trash? Share with them the 4 Rs: reduce, reuse, recycle, and refuse. Ask them to give an example of each.

Examples of the 4Rs:

- **Reduce**—buy large bag of chips and divide into smaller, reusable containers instead of buying snack-size, prepackaged bags with all of the wasted wrappings.
- **Reuse**—use bag that covers the newspaper (or any plastic baggie large enough) to pick up pet waste
Recyc-la-Saurus

- **Recycle**—aluminum soda cans, paper, cardboard, lunch plastic containers
- **Refuse**—don’t buy it in the first place!

Ask how long they think specific trash and litter items take to decompose. Use the resources in your curriculum materials for answers. Now choose some of the below questions that might be the most interesting to your campers and ask them to raise their hand for the best answer. Give them the correct answers and discuss them.

**Litter Quiz**

Source: Modified from Keep Pinellas Beautiful -- [http://www.keeppinellasbeautiful.org](http://www.keeppinellasbeautiful.org)

Correct answers are highlighted in yellow.

How much money can drivers and their passengers be fined for littering in Florida?
- a. $25
- b. $75
- c. $100
- d. $500

What is the most common type of roadside litter found in Florida?
- a. Cigarette butts
- b. Aluminum cans
- c. Fast Food Wrappers
- d. Tires

How long does it take a Styrofoam cup to decompose?
- a. 10 years
- b. 500 years
- c. 1 million years
- d. 10,000 years

How much litter happens accidentally like trash blowing out of the back of a truck?
- a. 10%
- b. 45%
- c. 63%

Nationwide, how many shopping carts are discarded each year?
- a. 1,500
- b. 100,000
- c. 245,000

How long does it take a banana peel to decompose?
- a. day
- b. 2-5 weeks
- c. months

Approximately, how much money does it cost per mile to remove litter?
- a. $23
- b. $47
- c. $63
Recy-cla-Saurus

How much litter is found on 2-miles of highway?
   a. 12,500 pieces
   b. 32,000 pieces
   c. 47,000 pieces

Each year, how much trash does each person make?
   a. 1 ton
   b. 2 tons
   c. 10 tons

How does litter harm wildlife?
   a. Causes water pollution
   b. Animals mistake litter for food
   c. Litter wraps around animal and harms it
   d. All of the above

Adopt-A-Highway volunteers pick up approximately how much litter each year?
   a. 17,000 tons
   b. 26,000 tons
   c. 100,000 tons

Nationwide, how much cigarette related litter is produced each year?
   a. 50 tons
   b. 100 tons
   c. 122 tons

During what activity does most littering occur?
   a. Biking
   b. Camping
   c. Boating
   d. Driving

Now think about the wildlife that comes into contact with these litter items. How do campers think litter like aluminum cans, plastic straws, plastic bottle tops, broken balloon pieces attached to string, cigarette butts, monofilament line (fishing line), and old abandoned crab traps (“ghost traps”) might injure wildlife? What could they do to prevent it?

After learning about the impacts of litter to Tampa Bay wildlife, campers will create their own animal out of recyclable materials. It can be any animal real or imagined. You could ask questions or give suggestions. Is this a recyla-animal that will visit you if you do not recycle? Is this an animal that will eat all the litter it finds? Or, will their animal simply clean up litter and recycle all items that can be recycled?

Spark their creativity! Remind them that creating a recycled animal is good and fun, but having these same litter items out in the Tampa Bay ecosystem could be very harmful, if not deadly to our wildlife. By making the right choice to reduce their trash and not litter, they make a positive difference in their Tampa Bay community!
The Web of Life

❖ Summary

Through an interactive discussion followed by a fun activity, campers will learn how the sun, plants, herbivores, and carnivores are all interconnected.

❖ Objectives

Campers will:

- Determine the difference between herbivores (plant eating animals), carnivores (meat eating animals), and omnivores (plant and/or meat eating animals)
- Learn how all of these animals are directly or indirectly connected
- Learn how the sun’s energy is transferred among plants and animals in nature

❖ Estimated Time for Activity

Approximately 30 – 45 minutes

❖ Materials

- Ball of yarn or string/twine (any color)
- 25 clothes pins (1 per camper)
- 25 cards (1 per camper)
  - 1 card labeled -- Sun
  - 5 plant cards (one plant per card) – Red Mangrove, Sea Grass, Black Mangrove, Marine Algae, Cabbage Palm Tree
  - 7 herbivore cards (one animal per card) – Manatee, Mangrove Crab, Green Sea Turtle, Crown Conch, Mullet (eats decaying matter), White-tail Deer, Marsh Rabbit
  - 5 omnivore cards (one animal per card) – Raccoon, Virginia Opossum, Gray Fox, Coyote, Wild Hog
  - 7 carnivore cards (one animal per card) – Blacktip Shark, Tarpon, Great Blue Heron, Osprey, Green Anole, Eastern Diamondback Rattlesnake, River Otter

❖ Setting

This activity can be conducted either indoors or outdoors.

❖ Vocabulary

Herbivore, carnivore, omnivore, producer, primary consumer, secondary consumer, tertiary consumer
The Web of Life

❖ Background

The food web, or the food chain as was formerly named, is a very complex system that we as humans do not have all the answers. It is never as simple as it seems. Carnivores may eat other prey animals, but those prey animals may also depend on smaller prey animals, or other plants, or even a combination of both to survive. The food web concept is an attempt to explain this complex system supplying animals with food.

The sun is the ultimate source of energy for most living organisms on earth. Without the sun, plants would not be able to grow, animals that depend on plants for food would not survive, and animals that depend on other animals to survive would not live. Therefore, the plants that produce their own energy from the sun via photosynthesis are called Producers.

Herbivores are animals that eat plants and are called Primary Consumers. Animals such as spiders, birds, or snakes that eat the Primary Consumers are called Secondary Consumers. Top predators that eat the Secondary Consumers are called Tertiary Consumers. Finally, at the end of the cycle you have the Decomposers breaking down all that is left so that the Producers may benefit from the nutrients and start the cycle all over again.

Since the Producers (plants) are the basis of the food web, they are extremely numerous.

❖ Activity

Give 1 card to each camper then have all the campers stand in a large circle with their cards clothes-pinned to their shirts and tell them that they are going to make their own food web. When a camper has the ball of yarn, they will need to determine which camper they could give their energy. The ball of yarn will represent their energy. The camper with the Sun card will go first. Ultimately, the Sun should pass the yarn to a camper with a Plant card that would then pass the yarn to a camper with an Herbivore card that would then pass the yarn to a camper with a Carnivore card. Once a camper with the Carnivore card has the yarn, they will pass it back to the sun and start over. Keep playing the activity until everyone is holding the yarn at least once.

To show how complex the food web is, after every camper is holding the yarn, ask one of the Plant card campers to let go. Be sure to clarify multiple times that only the camper(s) you tell to let go will release the yarn; everyone else needs to hold on to their yarn very tightly.

Now everyone camper that received energy from that camper should let go as well. Before long, the entire food web will fall apart and no campers will be holding the yarn. This will demonstrate that even if one part of the food web breaks down, the damage can be felt throughout many if not all the species in the food web.
A Sea Turtle Will Survive!

❖ **Summary**

Campers will learn about the limiting factors (food, water, shelter, space) and how sea turtles survive in the wild.

❖ **Objectives**

Campers will:

- Transform into sea turtles and learn to find food, water, shelter, and space to ensure their survival

❖ **Estimated Time for Activity**

Approximately 45 – 60 minutes

❖ **Materials**

- Scissors to cut paper
- 25, 8.5’ x 11” sheets of colored construction paper (plain white cardstock will work)
  - Each 8.5 X 11 piece of paper will be cut in four equal rectangles
  - Paper colors are green, red, orange, purple, blue, yellow and white
- Dice
- Optional – masking tape to create grid lines

❖ **Setting**

This activity can be conducted either indoors or outdoors.

❖ **Vocabulary**

Limiting factors, food, water, shelter, space, loggerhead sea turtle, leatherback sea turtle, hawksbill sea turtle, green sea turtle, Kemp’s ridley sea turtle

❖ **Background**

Florida is home to five sea turtle species – loggerhead sea turtle, green sea turtle, hawksbill sea turtle, leatherback sea turtle, and Kemp’s ridley sea turtle. The loggerhead sea turtle is a Threatened species and our other four sea turtles are listed as Endangered. Loggerhead sea turtles are the most common nesting sea turtle along the Gulf coast of Florida; however, our smallest sea turtle, the Kemp’s ridley sea turtle considers Tampa Bay an important location during their juvenile years of development.

Once male sea turtles are born, they never come back to shore. However, female sea turtles return to their natal nest area near where they were born to lay their eggs along the beaches and beach dune habitats.

Did you know that the temperature inside the sea turtle nest determines if the young sea turtles become male or female? At a critical stage of development while still in the egg,
warmer temperatures in the nest will produce females and cooler temperatures will produce males. Even within the same nest, the sand closer to the surface is constantly heated by the sun producing females while the deeper cooler sand produces males.

After the sea turtles hatch out of the nest, they wait until most of their siblings are also hatched. Then as one large group, they march to the water’s edge, plunge into the surf and feverishly swim to deeper water. They will spend their entire life out in the estuaries, and larger waterbodies (e.g., Gulf of Mexico, Atlantic Ocean, etc.). Not a lot of information is known about sea turtles after they hatch until they become adults. However, scientists are constantly studying them, so one day we may have more answers than questions. We know the very young sea turtles will hide in the floating seaweed located in the middle of the oceans, but there is so much more information that scientists are constantly investigating. The fortunate female hatchlings surviving until they are 30 – 50 years old will mate and then come back to land to lay their own eggs.

Adult sea turtles do not have many natural predators; however, when they are young and smaller, they are prey for many predators. From raccoons and ghost crabs eating them as eggs to gulls and large fishes eating them after they have hatched, sea turtle survival rates to adulthood are very slim. As adults they are still food for some animals; sharks are one of their main predators. Unnatural predators include humans. Some are killed for food and their shells (legally or illegally). Also, incidental deaths often occur.

Unfortunately, sea turtles become tangled in commercial fishing nets, drown after being caught on fishing gear, are hit by large boats and ships, and sometimes become trapped and drown during construction activities. Not to mention our very own human litter – plastic grocery bags and balloons – become sea turtle deathtraps. To a sea turtle, these floating bags and balloons look just like a jellyfish or other drifting invertebrates. Once these bags are ingested, they often get caught in the sea turtle’s throat or stomach preventing the sea turtle from eating, which ultimately starves it to death unless it is rescued by people. Even after countless hours in a sea turtle hospital, it is very difficult to nurse the injured sea turtles back to health and releasing them into the open waters.

❖ Activity

Set up your Sea Turtles Will Survive! game area by establishing a grid like the one below. You can add more spaces as desired.
A Sea Turtle Will Survive!

Label each of the squares on one side with the below messages. Place the written side down on the grid. If using white paper, write the color (e.g., “Orange”) on one side and the message on the other.

**Red Squares** (use the 3 different scenarios with 2 being used twice)
- Ouch! Hit by a boat. Move back to Start.
- Your luck is out. Trapped in fishing gear. Move back to Start.
- Yuck, you swallowed a plastic bag. Move back to Start.

If someone lands on a red square more than once, they go to a wildlife hospital and rehabilitation facility. Unfortunately, their injuries are too severe and they can never be released into the wild again. (Rehab is on the sidelines; they leave the game, rooting for their team from the sidelines.)

Young children typically do not like to be “killed off” in a game so moving them back a high number of spaces or permanently going to a rehab facility may be easier for them to accept.

**Green Squares** – Yummy! You found food. Move forward 2 spaces.
**Blue Squares** – Swim fast! Predator is chasing you. Move back 1 space.
**Yellow Squares** – You got tangled in fishing net. You broke free and are okay. Move forward 1 space.
**Orange Squares** – Your nest of eggs successfully hatched. Yea! You and your closest teammate behind you move forward 3 spaces.
**Purple Squares** – People hurt your habitat where you find food and rest. Move back 1 space.
**Blank or White Squares** – Free space. You are treading water. Stay here.

Place the colored paper randomly with at least one color in all columns (e.g., each team will have the same number of blue squares, red squares, etc.). Make sure the messages are face down.

Divide the campers up into equal teams (if there is an odd number, maybe one camper can be the official roller of the dice).

Roll the dice and the first person in line for each team will move forward the same number of squares as on the dice (e.g., if a 4 is rolled, the entire row of campers will move up 4 spaces).

Starting with Team #1, each player will read aloud their card message. Then they return the card facing down and move the number of spaces as told. The team with the most sea turtles at the finish line wins.

Options:
- Adjust how many teams and spaces you want to make on your game board.
- Let the teams create their own name or you can use the different species of sea turtles as their team names (e.g., loggerheads, greens, hawksbill, etc.).
- Vary the game by adding or removing the specific colored cards. Campers will quickly learn the card colors and if they will move forward or backward.
Can You Spare a Day for Tampa Bay?

❖ Summary

Campers will discuss their favorite animals or plants found in the Tampa Bay area and then discuss what they can do as individuals to protect or preserve them. Afterwards, campers will pledge via their own drawings what they can do to help the plants and animals of Tampa Bay. Their drawings can also be shared with the camper’s parents as they are posted on the walls or other space for their parents to see as they pick-up and drop-off their children for the camp.

❖ Objectives

Campers will:

- Discuss their favorite animal or plant found in the Tampa Bay ecosystem
- Determine actions that they personally can do to help preserve and protect their selected favorites
- Pledge to take action and illustrate their actions

❖ Estimated Time for Activity

Approximately 45 – 60 minutes

❖ Materials

- Dry erase board / chalk board / large piece of paper to record the campers’ favorite plants and animals in Tampa Bay
- 25-30 pieces of paper to illustrate the campers’ personal pledges
- Colored pencils, markers, or crayons for illustrations

❖ Setting

This activity can be conducted either indoors or outdoors. Because of the drawing paper involved, some outdoor locations or windy weather conditions may make this activity more suitable for indoors.

❖ Vocabulary

Estuary, Habitat, Preservation, Conservation

❖ Background

As Florida’s largest open water estuary, Tampa Bay covers approximately 400 square miles and supports an incredible diversity of plants and wildlife. In addition to supporting vast sea grass meadows, oyster beds, mudflats, and mangroves, Tampa Bay attracts anglers, boaters, swimmers, and countless others who just want to enjoy and appreciate
Can You Spare a Day for Tampa Bay?

the beauty of Tampa Bay. This does not include all the commercial shipping, boating, commercial fishing and residents that choose to live on the waters of Tampa Bay. In fact, approximately 2.3 million people populate the Tampa Bay area. If steps are not taken to maintain and preserve the habitats within and adjacent to Tampa Bay, all of the visitors and residents would probably reduce or lose their connection to our great estuary.

Many groups have not only pledged their support for keeping Tampa Bay clean and healthy, but many local governments, state and federal agencies, and local environmental groups have made significant financial and physical labor contributions to ensure Tampa Bay is healthy today and, hopefully, healthy for future generations.

You can imagine with all of the people sharing a connection to Tampa Bay, keeping Tampa Bay clean and healthy is imperative not only for the plants and wildlife, but to support all the user groups and preserve a delicate balance of human wishes and wildlife needs.

As a single resident, family, or visitor to the Tampa Bay area, you may ask yourself how can you contribute in a way that is not already be accomplished by one or more of the previously mentioned groups. After all, you are only one person and do not have the financial power or labor effort needed to match a large habitat restoration or habitat enhancement project.

Although this is true, the power of one can be tremendous if the majority of the local residents all do their part. Remember, there are approximately 2.3 million people living in the Tampa Bay area. What if everyone picked up one piece of litter, no matter how small, each day? That would equate to 2.3 million pieces of litter that could never enter the Tampa Bay waterways. What if only half of these people picked up one piece of litter? That would still equal 1.25 million pieces of litter that could never enter the Tampa Bay waterways or injure wildlife. How much would it cost to pay someone or a group of people to pick up over a million pieces of litter every day? How much would it cost for each person to simply bend over and pick up one piece of paper they see as they are walking into the grocery store? This is only one example of how the power of one person can make huge contributions and help preserve our beloved Tampa Bay.

Imagine the headline, “Tampa Bay Has Run Out of Litter!” How can you make your difference?

❖ Activity

Start by having all the campers close their eyes and imagine their favorite animal, plant or place in the Tampa Bay area. Is it fishing or boating on the actual waters of Tampa Bay with their family and friends? Is it enjoying the afternoon at Fort DeSoto Park? Tell the campers to imagine feeling the breeze as it glides over the calm Tampa Bay waters. Can they feel the sun and salt spray on their body? Are they watching pelicans crash dive into a school of baitfish trying to catch a meal, or bottlenose dolphins peacefully swim along the surface? Encourage the campers to use their imaginations.

Next, ask the campers to share with the group one of their favorite animals, plants, or places found in our Tampa Bay community. Try to get all campers to list at least one and write them on your board or large paper for all to see. Optional: you could break the campers into groups and award them one point for each different answer and maybe
Can You Spare a Day for Tampa Bay?

give bonus points for the most original, etc. Once they start listing their plants, animals, and places enthusiastic discussions are bound to occur. That is great because you can help them channel that enthusiasm and passion into their pledge drawings.

Now ask the campers to look at the list and have them share some ideas of how they can help these animals, plants or places. Write these next to the respective items on the board.

Tell them it is time to choose one of these animals, plants or places and one of the ways they will help it. They can use their suggestion written on the board or someone else’s suggestion. They will make a pledge to help, which in turn helps preserve the Tampa Bay area.

Pass out the blank pieces of paper to all campers so that they can draw themselves doing whatever helpful pledge they decided. Have them write their names on their drawings and post them in a position that the parents/guardians can see when they come in to drop-off or pick-up their campers.

Be sure all campers get to take their drawings home with them at the end of camp.

Pledge Ideas

I pledge to...

- Keep my cat indoors so it doesn't get hurt and doesn’t hurt wildlife.
- Pick up at least 1 piece of litter every day.
- Be more tolerant of snakes in my yard.
- Scoop my dog’s poop every day.
- Put up a screech owl nest box in my yard.
- Teach my younger brother/sister how to tell if a plastic container can be recycled and help him/her remember to recycle.
- Help my parents plant native plants in my grandparents’ yard.
- Start a nature club at school.
- Learn the names of at least 10 animals found at my favorite park and look up what they need to survive (food, shelter, water, space).
- Always remove my fishing line when it gets caught in the trees or oysters…even if it takes away my fishing time and I have to ask for help.
- Share with my friends and family at least 3 things that I learned in camp to help our wonderful Tampa Bay area.

Wouldn't it be great if everyone gave a little time everyday to preserve Tampa Bay?
Summary

This activity will test your campers’ knowledge about Tampa Bay during a fun, trivia contest format.

Objectives

Campers will:

- Improve their teamwork skills
- Demonstrate their knowledge of Tampa Bay’s conservation, ecology, wildlife biology, species migration, wildlife adaptations, and history
- Learn new information about the above topics

Estimated Time for Activity

Approximately 45 – 60 minutes

Materials

- 1 copy of the Tampa Bay all the Way! Questions and Answers for each Camp Counselor
- Scoreboard – can be a pad of paper, erasable board, chalk board, etc.
- Calculator
- Timer
- Prizes for winning team(s)
- Poster board to use as a game board. The game board design can also be drawn onto an erasable board.
- Easel for poster board
- 55 note cards for Round 1.
  - Print or hand write Round 1 topic headers (5 cards total)
  - Print the Round 1 questions and answers. Cut them out and adhere the respective question and answer to each note card (25 cards total).
  - Print or hand write the Round 1 point cards (25 cards total): five note cards labeled 100, five labeled 200, five labeled 300, five labeled 400, five labeled 500
- 55 note cards for Round 2
  - Print or hand write Round 2 topic headers (5 cards total)
  - Print the Round 2 questions and answers. Cut them out and adhere the respective question and answer to each note card (25 cards total).
  - Print or hand write the Round 2 point cards (25 cards total): five note cards labeled 200, five labeled 400, five labeled 600, five labeled 800, five labeled 1000
- Velcro to affix note cards to game board (60 pieces per Round = 120 pieces)
- Suggestion: Create 5 tie-breaker questions/answers of your own that corresponds with your camp location, local area or another their specific theme
Tampa Bay All the Way!

❖ Setting

This activity can be conducted either indoors or outdoors.

❖ Vocabulary & Concepts

Habitat, migration, estuary, adaptations, wingspan, plume trade, mosquito ditches, Tampa Bay area history

❖ Background

Prepare your game board by using poster board or something else reusable; or draw it on an erasable board.

Sample game board design for Round 1:

<table>
<thead>
<tr>
<th>Topic 1</th>
<th>Topic 2</th>
<th>Topic 3</th>
<th>Topic 4</th>
<th>Topic 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>200</td>
<td>200</td>
<td>200</td>
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<tr>
<td>300</td>
<td>300</td>
<td>300</td>
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<tr>
<td>400</td>
<td>400</td>
<td>400</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
</tr>
</tbody>
</table>

Sample game board design for Round 2:

<table>
<thead>
<tr>
<th>Topic 1</th>
<th>Topic 2</th>
<th>Topic 3</th>
<th>Topic 4</th>
<th>Topic 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>400</td>
<td>400</td>
<td>400</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>600</td>
<td>600</td>
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<tr>
<td>1000</td>
<td>1000</td>
<td>1000</td>
<td>1000</td>
<td>1000</td>
</tr>
</tbody>
</table>
Tampa Bay All the Way!

For each game, you will need a Camp Counselor to ask the game questions and another Camp Counselor to keep score and be the timekeeper. The group needs to be divided into smaller groups, preferably no groups with fewer than five campers.

To increase involvement by all team members, consider having campers “number off” into teams. This will encourage campers to partner with other campers who they might not know as well. Also determine the order that the teams will take turns (e.g., Team 1 gets to answer the first question, Team 2…).

Each team will have a set amount of time and correctly answer in the form of a question (e.g., 30 seconds to answer, “What is a tarpon?”). If a team answers incorrectly or does not provide a potential answer, the remaining team (if two only teams) or the first team to raise their hand (if more than two teams) will be given an opportunity to answer. After the second team provides either a correct or incorrect answer, that card is extinguished and the next team up for questions selects from the game board their topic and point amount.

❖ Rules

1. There are a total of five categories of questions per round.
   a. Round 1 questions will be worth 100, 200, 300, 400, or 500 points each.
   b. Round 2 questions will be worth 200, 400, 600, 800, or 1,000 points each.
2. After a team requests a specific category and point amount, that point amount card is removed from the game board (e.g., Topic 1 for 200 points).
3. Each team will have 30 seconds to answer the question in the form of a question. Thirty seconds is an adequate amount of time to allow for answers while keeping everyone engaged in the game.
   a. Optional – For younger campers, you could allow them to answer the question in any fashion not restricting answers to question form.
   b. Optional – For older campers, if a team answers incorrectly you could subtract from their total the number of points for that category.
4. After a team answers correctly, that same team picks another topic and point card. If the team answers incorrectly, the other team or the first team to raise their hand gets a chance to answer the question. After the second team provides either a correct or incorrect answer, the next team up for questions will get to select from the game board.
5. Round 1 and Round 2 are complete when all point cards have been removed from the game boards.
6. Once all questions from Round 1 and Round 2 have been used, the team with the highest amount of points wins. If there is a tie, ask the bonus questions that you created which are possibly related to a theme or your camp location.
### Round 1 Questions

<table>
<thead>
<tr>
<th>Tampa Bay Birds</th>
<th>Fishes of Tampa Bay</th>
<th>What Can I Do?</th>
<th>Migratory Species</th>
<th>Wildlife Adaptations</th>
</tr>
</thead>
<tbody>
<tr>
<td>A group of birds is called this.</td>
<td>We avoid these flat cartilaginous fishes by &quot;shuffling&quot; in the water and they are also the name of a local baseball team.</td>
<td>This is what you should do whenever you see litter.</td>
<td>This is the major reason animals migrate each year.</td>
<td>Without this rudder, fish, dolphins, manatees, and river otters would have a hard time steering their bodies underwater.</td>
</tr>
<tr>
<td>This large bird tucks its 6 feet wingspan next to its body before diving head first into the water after its fish dinner.</td>
<td>This baitfish has very sharp spines or &quot;pins&quot; along its fins used for protection from predators.</td>
<td>After eating or drinking, you should do this to reduce what is thrown in the trash.</td>
<td>What Pinellas County Park named after Hernando deSoto is world famous for migratory birds each year?</td>
<td>Wading birds have very long ________ to help them walk around in the water.</td>
</tr>
<tr>
<td>The _____ is also another word for the mouth of the bird.</td>
<td>This small baitfish is the most numerous fish in Tampa Bay; you may even eat them on your pizza!</td>
<td>This is illegal to do to dolphins, raccoons, foxes (and many other animals) and teaches gulls very bad manners.</td>
<td>These birds have distinctive red breast (chest) feathers. Hint: Who is Batman's partner?</td>
<td>Since their skins cannot grow as this animal grows, this reptile has to shed its skin.</td>
</tr>
<tr>
<td>This bird is the symbol for the United States.</td>
<td>What fish likes to jump multiple time out of the water and no one really knows why?</td>
<td>These plants are originally from Florida and you help wildlife by doing this in your yard and schoolyard.</td>
<td>These large aquatic mammals migrate to warmer waters when it gets too cold in the winter, you may also find them in the warm discharge waters at power plants.</td>
<td>This large pink bird uses its spoon-shaped bill to catch its prey.</td>
</tr>
<tr>
<td>What is the State bird of Florida?</td>
<td>This top predator has extremely sharp teeth and instead of bones, they have cartilage.</td>
<td>Since domestic cats kill hundreds of millions of birds each year outdoors, what could you do to prevent this?</td>
<td>These large white birds do not dive-bomb they food like their brown pelican relatives.</td>
<td>This very large, trophy game fish can breathe oxygen from the water and air. Hint: also called the &quot;Silver King.&quot;</td>
</tr>
</tbody>
</table>
# Tampa Bay All the Way!

## Round 1 Answers

<table>
<thead>
<tr>
<th>Tampa Bay Birds</th>
<th>Fishes of Tampa Bay</th>
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<th>Migratory Species</th>
<th>Wildlife Adaptations</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is a flock?</td>
<td>What are rays?</td>
<td>What is Pick it Up?</td>
<td>What is to find food?</td>
<td>What is a tail?</td>
</tr>
<tr>
<td>What is a brown pelican?</td>
<td>What is a pinfish?</td>
<td>What is recycle?</td>
<td>What is Fort DeSoto Park?</td>
<td>What are legs?</td>
</tr>
<tr>
<td>What is the beak or bill?</td>
<td>What is a bay anchovy? (Or, what is an anchovy?)</td>
<td>What is feed wildlife?</td>
<td>What are Robins?</td>
<td>What are snakes? Or, what are lizards?</td>
</tr>
<tr>
<td>What is a bald eagle?</td>
<td>What is a mullet?</td>
<td>What is plant native plants?</td>
<td>What are Florida manatees?</td>
<td>What is a roseate spoonbill? Or, what is a spoonbill?</td>
</tr>
<tr>
<td>What is the Northern Mockingbird</td>
<td>What is a shark?</td>
<td>What is keep your cats indoors/inside?</td>
<td>What are white pelicans?</td>
<td>What is the tarpon?</td>
</tr>
</tbody>
</table>
## Tampa Bay All the Way!

### Round 2 Questions

<table>
<thead>
<tr>
<th>History of Tampa Bay</th>
<th>Invertebrates</th>
<th>Change of Seasons</th>
<th>Liter and Pollution</th>
<th>Mammals</th>
</tr>
</thead>
<tbody>
<tr>
<td>This invention, that we take for granted today, made living in Tampa Bay less hot and humid indoors.</td>
<td>Give the main difference between invertebrates and vertebrates.</td>
<td>During June through September, this Florida season is named after the amount of rain that falls.</td>
<td>This thin, clear string-like line can remain in nature for over 500 years if not cleaned up. Hint: keep this in mind next time you go fishing.</td>
<td>These &quot;masked&quot; animals are extremely adaptable and can be found living in natural and urban areas.</td>
</tr>
<tr>
<td>This bridge is over 4 miles long and was first built in 1954 connecting Pinellas and Manatee Counties.</td>
<td>These bivalve animals (two-shells) can filter over 10 gallons of water every day helping keep Tampa Bay healthy!</td>
<td>Unlike some trees that are deciduous (drop their leaves in the fall/winter), the ___ mangrove is &quot;evergreen.&quot;</td>
<td>This litter is the #1 litter item found in Tampa Bay and throughout the world.</td>
<td>The only Florida marsupial (pouched) animal can also be seen in the coastal habitats of Tampa Bay.</td>
</tr>
<tr>
<td>This tree is what Pinellas County is named after.</td>
<td>This crab lives underwater, is often eaten by people and is named after a color.</td>
<td>We rest. Wildlife rest. Give the season that plants rest when they are not growing a lot and do not need much food or water.</td>
<td>These bright and loud explosions are fun for humans on July 4th, but they also scare baby beach birds and litter our beaches.</td>
<td>These small gray and rust-colored canines (dog relative) can actually climb trees.</td>
</tr>
<tr>
<td>Give two reasons the Tampa Bay area has lured people to come here.</td>
<td>This large conch is our State shell. Hint: it is not big enough to ride as the name implies… Giddy up!</td>
<td>In winter when the Gulf of Mexico and the Atlantic Ocean water temperature drops, where do manatees find warmer water approximately 72°?</td>
<td>Picking up after these animals can prevent excess nutrients (pollution) from entering Tampa Bay … &quot;Scoop the Poop&quot;</td>
<td>These bottlenose mammals often can be seen swimming in Tampa Bay.</td>
</tr>
<tr>
<td>In the 1950s, ditches harmful to the environment were dug through our mangrove swamps to remove these biting insects.</td>
<td>This underwater &quot;living fossil&quot; has blue blood. Hints: it is not a farm animal; you do not wear it on your foot; and it is not a crab.</td>
<td>During the late 1800s and early 1900s, many nesting waterbirds were hunted almost to extinction for their plumes to be put into this type of clothing.</td>
<td>Building sand castles is fun, but be sure to take these tools home with you, otherwise they become beach litter.</td>
<td>This large aquatic mammal is sometimes called a Sea Cow.</td>
</tr>
<tr>
<td>History of Tampa Bay</td>
<td>Invertebrates</td>
<td>Change of Seasons</td>
<td>Liter and Pollution</td>
<td>Mammals</td>
</tr>
<tr>
<td>---------------------</td>
<td>--------------</td>
<td>------------------</td>
<td>---------------------</td>
<td>---------</td>
</tr>
<tr>
<td>What is air conditioning?</td>
<td>What are vertebrates have a backbone? Or, what is invertebrates lack a backbone?</td>
<td>What is the rainy season?</td>
<td>What is fishing line or monofilament line?</td>
<td>What are raccoons?</td>
</tr>
<tr>
<td>What is the (Bob Graham) Sunshine Skyway Bridge?</td>
<td>What is an Eastern oyster?</td>
<td>What is the red? Or, what is the black? Or, what is the white?</td>
<td>What is a cigarette butt?</td>
<td>What is the Virginia opossum? Or, what is the opossum?</td>
</tr>
<tr>
<td>What is the pine tree or long leaf pine tree?</td>
<td>What is a blue crab?</td>
<td>What is winter?</td>
<td>What are fireworks?</td>
<td>What is a gray fox?</td>
</tr>
<tr>
<td>What is...military, agriculture, mining, development, mild climate, fishing, water/Gulf/Ocean, wildlife viewing, beaches, tourism, etc.</td>
<td>What is a horse conch?</td>
<td>Where is in the freshwater springs?</td>
<td>What are dogs?</td>
<td>What are bottlenose dolphins?</td>
</tr>
<tr>
<td>What are mosquitoes?</td>
<td>What is a horseshoe crab?</td>
<td>What is a hat?</td>
<td>What are beach toys (shovels, buckets, etc.)?</td>
<td>What is the Florida manatee?</td>
</tr>
</tbody>
</table>
Who Am I???

❖ Summary

This activity is an interactive wildlife learning experience encouraging campers to interact with one while developing techniques for identifying our local Tampa Bay wildlife.

Camp counselors will affix a picture of a local wildlife species to each camper’s back without the camper's knowledge of what the image is. Campers will then interact with each other asking “yes” or “no” questions about the image on their back so that they can correctly identify it.

❖ Objectives

Campers will:

- Learn to how to ask descriptive questions necessary for identifying wildlife.
- Learn what descriptive questions are more useful than others are when identifying wildlife.
- Relay important physical and behavioral characteristics of our local wildlife to other campers while learning details themselves about these animals.

❖ Estimated Time for Activity

Approximately 30 – 45 minutes

❖ Materials

- 20 - 30 images of Tampa Bay wildlife; 1 image per camper. If you want to print another set of the Wildlife Connections cards for this activity, avoid cutting them in half like you did for the Wildlife Connections activity.
  - Other options: use computer clip art; have volunteers or interns draw the animals; collect used magazines and cut out images.
- Tape or clothespins to affix the images to the back of campers’ shirts

❖ Setting

This activity can be either indoors or outdoors.

❖ Vocabulary

Mammal, Reptile, Fish, Bird, Insect, Bug
Who Am I???

❖ Background

Have you ever observed an animal that you had never seen before? How do you remember it? Was it a bird, reptile, mammal, fish, or insect? What color was it? Did it have any distinctive markings? These are all great questions to ask when trying to identify an unknown animal.

In this activity, the campers will discover their “new” animal without ever initially seeing the animal. Campers should be encouraged to ask basic questions like, “Is it a bird?” or, “Is it a reptile?” before they can ask more descriptive questions.

For example:
Is it a bird…Yes
Is it a small bird…Yes
Is it blue…No
Is it brown…No
Is it red…Yes
Is it a northern cardinal…YES!

❖ Activity

Line up all campers in a line, shoulder to shoulder, facing forward (no peeking!). Camp Counselors walk behind the campers and tape or clothespin one wildlife image to each camper’s back without the campers seeing the images.

Tell the campers they only get ONE yes or no question per person before they try either to guess their animal or rotate to another camper. If they do not guess the animal correctly, they must move on and ask another camper ONE yes or no question and try and guess their animal again.

For every question they ask about their wildlife animal, they should also answer a wildlife question from a fellow camper. The campers should repeat this process until all of the animals are guessed.

Once a camper correctly guesses their animal, they can have another camper remove the image from their back and then the camper is to tape/clothespin the image to the front of their shirt and sit down. Be sure to ask them to whisper the name of their animal to you as soon as they sit down. In case they have misidentified the animal, they will need to stand up and continue asking questions to the other campers.

After everyone is sitting, as a group ask each camper to identify their animal. You may also ask them how many guesses it took to get the correct answer.
Who Am I???

- **Extended Activity**

  You can also make this a contest to find out who can guess their animal with the fewest number of guesses! You can rotate the cards and play this activity as many times as you like. This repetition will hone their identification skills for each species, reinforce the correct names for the animals found in the Tampa Bay region, as well as improve the campers’ abilities to ask clear and specific identification questions.
## 2012/2013 BAY MINI-GRANTS

<table>
<thead>
<tr>
<th>RECIPIENTS</th>
<th>AMOUNT</th>
<th>Project Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anna Maria Island Turtle Watch</td>
<td>$4,500.00</td>
<td>Flipper and Feathers Outreach Booklet</td>
</tr>
<tr>
<td>Around the Bend Nature Tours</td>
<td>$4,850.00</td>
<td>LID Field Trips: Teaching New Pathways for Stormwater Management</td>
</tr>
<tr>
<td>Clearwater Audubon Society</td>
<td>$3,474.68</td>
<td>Least Tern Ruffs</td>
</tr>
<tr>
<td>Community Stepping Stones</td>
<td>$4,915.00</td>
<td>Beautiful Building Blocks: Food Web</td>
</tr>
<tr>
<td>Dosewall Middle Magnet School</td>
<td>$3,302.96</td>
<td>Camping by the Bay</td>
</tr>
<tr>
<td>East Lake Park Homeowners</td>
<td>$9,988.67</td>
<td>Watershed Education and Wetlands Treatment</td>
</tr>
<tr>
<td>Ecotours Restoration Institute - Golden</td>
<td>$10,000.00</td>
<td>Little Springs Restoration</td>
</tr>
<tr>
<td>Friends of Boyd Hill Nature Preserve</td>
<td>$4,032.60</td>
<td>Herpetological Field Trips at Boyd Hill</td>
</tr>
<tr>
<td>Keep Tampa Bay Beautiful</td>
<td>$5,000.00</td>
<td>Live It, Love It, Preserve It.</td>
</tr>
<tr>
<td>Lowry Park Zoo</td>
<td>$5,000.00</td>
<td>Aliens of the Bay</td>
</tr>
<tr>
<td>Manatee School for the Arts</td>
<td>$5,000.00</td>
<td>MSA Marine Science Program - Exploring Field Trips</td>
</tr>
<tr>
<td>National Audubon Society/Audubon FL</td>
<td>$5,000.00</td>
<td>Terra Cela Bay, Manatee Mouth, L. T.Bay Boater's</td>
</tr>
<tr>
<td>Pinellas Co. Dept. of Environ. Infrastructure</td>
<td>$4,989.90</td>
<td>Leukemian Water Quality Education Initiative</td>
</tr>
<tr>
<td>Pinellas Co. Parks &amp; Conserv. Resources</td>
<td>$10,000.00</td>
<td>Fort De Soto North Beach Dune Habitat Restoration</td>
</tr>
<tr>
<td>Riviera Bay Civic Association</td>
<td>$4,202.00</td>
<td>RBCA Operation Healthy Water Clean Up</td>
</tr>
<tr>
<td>Sierra Club Inner City Outings</td>
<td>$5,000.00</td>
<td>Equipment Request for T.Bay Inner City Students</td>
</tr>
<tr>
<td>Tampa Bay Watch, Inc.</td>
<td>$10,000.00</td>
<td>Ehon Island Oyster Reef Project</td>
</tr>
<tr>
<td>The Pier Aquarium</td>
<td>$3,000.00</td>
<td>Monitoring Maredine: Synergism of Science &amp; Edu.</td>
</tr>
</tbody>
</table>

$97,775.01 | $40k - to end of FY |

## 2013/2014 BAY MINI-GRANTS

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</tr>
<tr>
<td>Canterbury School of Florida</td>
<td>$4,850.00</td>
<td>Estuary Education</td>
</tr>
<tr>
<td>Community Stepping Stones</td>
<td>$5,025.00</td>
<td>‘I AM RIVER’ The Hillsborough River’s journey to the Gulf - personal stories of the Estuary Basin told through a video made by the teens of Community Stepping Stones</td>
</tr>
<tr>
<td>Dosewall Middle Magnet School</td>
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<td>Teens4TampaBay: Empowering Youth to Save Our Waterways</td>
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<td>Manatee School for the Arts</td>
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<td>The Florida Aquarium, Inc.</td>
<td>$4,610.00</td>
<td>Secondary Teachers Exploring Climate Change in Tampa Bay</td>
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<td>UF/IFAS Extension, Fl Sea Grant in Pin.Co.</td>
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<td>Building Connections: A Collaborative Climate Change Education Project</td>
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<td>West Coast Fl Chap. Amer. Meteor. Society</td>
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<td>Environmental Weather Workshop for Teachers</td>
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$86,303.09 |

## 2014/2015 BAY MINI-GRANTS

<table>
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<tr>
<th>RECIPIENTS</th>
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<td>Canterbury School of Florida</td>
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<td>Manatee County (CADE) Center for Open Learning</td>
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<td>Natural Marine Debris Collection Areas</td>
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<td>Think Earth: The Tampa Bay I want to inherit</td>
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<td>Eckerd College</td>
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<td>Plastics and Microplastics in Tampa Bay Education and Action</td>
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<td>Hillsborough Community College</td>
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<td>The Suwanee Cooter in the Alafia River: Determining Distribution, Status and Conservation needs of a disjunct turtle population</td>
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<td>EPIC-HC</td>
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<td>Artificial Reef Program Brochure/ Catch APP</td>
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<td>Keep Tampa Bay Beautiful</td>
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<td>Watershed Education Model and Restoration Project</td>
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<td>Lowry Park Zoological Society of Tampa, Inc.</td>
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<td>Bringing “beauties” to the Zoo: A collaborative Teen Program for Science Investigation and self-expression</td>
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<td>Manatee School for the Arts</td>
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<td>Neighborhood B Homeowners Assoc</td>
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<td>Lake Taroto Restoration &amp; Revestigation</td>
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<td>Riviera Bay Civic Association</td>
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<td>TASCO Teen Center</td>
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<td>The Florida Aquarium</td>
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<td>The Friends of Boyd Hill Nature Preserve</td>
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<td>Swamp Woodland Restoration Project Continuation</td>
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<td>The Manatee County BOC/Libary System</td>
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<td>The Waterway Book to Action Project</td>
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## 2015/2016 BAY MINI-GRANTS

<table>
<thead>
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<th>RECIPIENTS</th>
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<tr>
<td>Anna Maria Island Turtle Watch</td>
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<td>AMITW Shorebird Monitoring Educational Toolkit</td>
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<td>Around the Bend Nature Tours</td>
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<td>Protecting our Watershed through Bird Education</td>
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<td>ArtCenter Manatee</td>
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<tr>
<td>Blue Turtle Green Bird Society</td>
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<td>Vote with Your Butts</td>
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<td>Friends of Boyd Hill Nature Preserve</td>
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<td>Kayaks for Education and Cleanups</td>
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<td>Keep Pinellas Beautiful</td>
<td>$5,000.00</td>
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<td>Lowry Park Zoological Society of Tampa, Inc.</td>
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<td>Teens4TampaBay: Protecting Water Resources with Rain Gardens</td>
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<td>Manatee School for the Arts</td>
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<td>From the Source to the Sea</td>
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## 2016/2017 BAY MINI-GRANTS

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<td>Live It, Love It, Preserve It.</td>
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<td>Lowry Park Zoo</td>
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<td>One More Generation (CMU)</td>
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<td>The Shores of Long Bayou HOA</td>
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<td>Sweep the Street in Front of Your Own Home</td>
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<td>UF/IFAS Extension Pinellas County</td>
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<td>Wildlands Conservation</td>
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A Tampa Bay Estuary Program Initiative to Maintain and Restore the Bay’s Seagrass Resources

**Background**

Light availability to seagrass is the guiding paradigm for TBEP’s Nitrogen Management Strategy. Because excessive nitrogen loads to the bay generally lead to increased algae blooms (higher chlorophyll-a levels) (Figure 1) and reduce light penetration to seagrass, an evaluation method was developed to assess whether load reduction strategies are achieving desired water quality results (i.e. reduced chlorophyll-a concentrations and increased water clarity).

**Decision Support Approach**

Year to year algae abundance (measured as chlorophyll-a concentrations) and visible light penetration through the water column (depth of secchi disk visibility) have been identified as critical water quality indicators in Tampa Bay. Tracking the attainment of bay segment specific targets for these indicators provides the framework from which bay management actions are developed & initiated. TBEP management actions adopted in response to the annually-assessed decision support results are as follows:

- **Stay the Course.** Continue planned projects. Report data via annual progress reports and Baywide Environmental Monitoring Report.
- **Caution Alert.** Review monitoring data and nitrogen loading estimates. Begin/continue TAC and Management Board development of specific management recommendations.
- **On Alert.** Finalize development and implement appropriate management actions to get back on track.

**2016 Decision Matrix Results**

Bay water quality slightly improved in 2016, despite exceptionally high summer rainfall and emergency domestic discharges to waterways leading to Old, Middle and Lower Tampa Bays. Improvements in Old Tampa Bay (OTB) and Middle Tampa Bay (MTB) chlorophyll-a concentrations were observed (Table 1; Figure 2). The nuisance algae, *Pyrodictium bahamense*, was again reported in OTB throughout the Summer and Fall 2016, contributing to OTB small magnitude chl-a exceedence. Furthermore, individual station exceedences were primarily in upper MTB & Hillsborough Bay & throughout OTB where observed blooms were greatest (Figure 3).

**Table 1: Observed water quality indicators & recommended management outcomes for 2016**

<table>
<thead>
<tr>
<th>Bay Segment</th>
<th>Chlorophyll-a (ug/L)</th>
<th>Effective Light Penetration (m²)</th>
<th>Management Response</th>
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<td>HB</td>
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<td>LTB</td>
<td>3.0</td>
<td>4.6</td>
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**Figure 1:** Guiding paradigm for Tampa Bay seagrass restoration through the management of nitrogen loads.

**Figure 2:** Historic chlorophyll-a annual averages for the four bay segments. Chlorophyll-a concentrations were below FDEP criteria for each bay segment in 2016.

**Figure 3:** Map depicting individual station chlorophyll-a annual exceedences in Tampa Bay.
Progress Towards Meeting Regulatory Goals

An initiative of the Tampa Bay Nitrogen Management Consortium (NMC)

Maintaining Reasonable Assurance & TMDL Compliance

The TBEP, in partnership with the Tampa Bay Nitrogen Management Consortium, will submit the fifth compliance assessment report for the 2012-16 Reasonable Assurance (RA) Period to the FDEP in March 2017. As of 2016, all bay segments were in compliance with the FDEP regulatory criteria for chlorophyll-a concentrations (matrix to the left). Therefore, the Tampa Bay NMC continues to maintain FDEP reasonable assurance that they Bay is meeting water quality criteria related to nutrients. The Tampa Bay NMC will submit the final 2017 RA Update to FDEP by December 31, 2017.

2016 Chl-a Monthly Variation Compared to 1974-2015

Chlorophyll-a concentrations were evaluated within the bay on a monthly basis (Figure 4) during 2016 and compared to prior years’ levels. Elevated concentrations in Old Tampa Bay were primarily due to *Pyrodinium bahamense* blooms, though 2016 levels were lower than previous years. Hillsborough Bay also showed elevated concentrations during one month in 2016. High monthly values highlighted by the yellow ovals below.

Tampa Bay Seagrass Coverage Continues to Increase

Tampa Bay’s seagrass recovery continues on a positive trajectory, as an additional 1,360 acres of seagrass coverage was reported from 2014 to 2016. The baywide total seagrass coverage is now estimated to be 41,655 acres as of 2016 (Figure 5). For the first time, the 2016 seagrass coverage now exceeds both the baywide seagrass recovery target (38,000 acres) and the total estimated seagrass coverage in the 1950s period (40,420 acres). It should be noted that the 2016 estimates were derived from aerial photography acquired during the winter of 2015/16 prior to recent anomalous summer rainfall and unanticipated sanitary sewer release events during the summer of 2016. The next SWFWMD seagrass coverage estimates will be developed from aerial photographs anticipated to be acquired over the winter 2017/18 period. More information on the Bay’s seagrass utilization transact monitoring data can be found in a recent TBEP Technical Publication #08-16.
1. **Name/Authority/Location**

The name of this organization shall be the Community Advisory Committee (CAC). The CAC is authorized by the Policy Committee of the Tampa Bay Estuary Program (TBEP) to serve in an advisory capacity to the program. The principal mailing address of the CAC shall be the project office.

2. **Purpose and Function**

The CAC shall provide guidance and advice to the TBEP Management and Policy Boards on the conduct of the program and promote public awareness of the Estuary Program's issues and goals.

To fulfill these purposes, the members of the CAC are expected to communicate the activities of the TBEP and the CAC to their respective organizations and/or representative interest groups and, conversely, to communicate the comments and concerns of these organizations to the TBEP Policy and Management Boards and other TBEP committees as appropriate.

CAC members specifically agree to:

- Communicate at least once a year with their local elected officials to provide an update on the efforts and progress of the TBEP in restoring Tampa Bay
- Volunteer for at least one TBEP-sponsored activity or special event each year.
- Periodically assist the TBEP in organizing public forums to discuss key issues of concern related to bay restoration
- Represent TBEP on other committees and boards, as appointed by CAC co-chairs;
- Provide feedback to TBEP on the views of the communities and interest groups they represent, as they relate to the goals of the Comprehensive Conservation and Management Plan for Tampa Bay;
- Promote and support opportunities for public involvement in bay restoration, and assist the TBEP with selection of grant recipients through the Bay Mini-Grant program
- Provide feedback to TBEP on the annual program Workplan.
- Evaluate and report progress by local communities and agencies in implementing the CCMP and provide support where needed;
Encourage efforts by bay agencies and organizations to leverage resources, reduce duplication and focus on priorities.

3. **Membership**

Members of the CAC shall be appointed by the nine-member TBEP Policy Board who shall each appoint one (1) CAC member. Those appointed will serve as an appointee for as long as their appointer remains on the Policy Board or for a shorter term as designated by their appointer. Existing appointees of past Policy Board members may apply to be a member ‘at-large’. Additionally, the Tampa Bay Estuary Program shall recruit up to eighteen (18) more interested candidates from throughout the Tampa Bay watershed to serve as ‘at-large members’. Applicants for ‘at-large’ membership will be reviewed and recommended by the current CAC members and approved by the Policy Board.

In evaluating new members, the CAC, Policy Board and TBEP staff will strive to ensure that the CAC reflects a balance of geographic, cultural and community interests. Members will serve staggered, 2-year terms with the option of extending the appointment by submitting a written request. New members will be recruited as the need arises, with the total number of CAC members not to exceed twenty seven (27).

Each member shall meet the following criteria:

- Is potentially affected by management recommendations contained in the CCMP.
- Will assume responsibility for communicating with a major user or interest group(s) and to attend scheduled meetings.
- Is knowledgeable about and/or interested in Tampa Bay issues.
- Works or resides in Hillsborough, Pinellas, Pasco or Manatee counties.
- Have an active e-mail account, so he or she can receive committee correspondence from TBEP staff.

4. **Officers**

Officers of the CAC shall be elected by the members and shall include a chairperson, or chairpersons, and other officers and committee chairs as required and deemed appropriate by a consensus of the membership. Elections shall occur annually at the beginning of each calendar year.

The chairperson(s) of the CAC shall be elected by a simple majority vote of the members. The chairperson(s) of the CAC will be have one voting seat on the TBEP Management Committee and be responsible for:

- Attending Tampa Bay Estuary Program CAC, Management & Policy Board meetings;
- Reporting recommendations and concerns of the CAC to these committees;
- Participating in the development/implementation of public education and outreach programs;
- Developing CAC meeting agendas with assistance from the TBEP staff; and
- Communicating CAC issues with other committees of the Management Conference and other community groups, and representing the CAC in the community, as needed.
- Appointing Ad-Hoc committees as the need arises.

5. **Meetings**

Regular meetings of the CAC shall be held 4 times per year. Additional meetings may be called by the chairperson(s), or at the request of the TBEP staff, the Management and Policy Boards, or a majority of the CAC members, in which case the TBEP staff will schedule a meeting as soon as possible. Subcommittees may be established as needed.

Meetings of the CAC shall be open to the public and noticed by the project office in conformance with applicable Federal, state and local sunshine/public access requirements. A portion of time will be allocated at each meeting for public comment.

Active media participation in all aspects of the Program is invited and encouraged. The project office will serve as the primary media contact source.

Meetings will be conducted by general consensus, based on Robert's Rules of Order.

6. **Subcommittees**

Subcommittees shall be established as needed.

7. **Expenses**

All members shall serve without compensation, although reasonable expenses may be reimbursed subject to approval from the NEP.

8. **Attendance**

Members of the CAC are expected to attend all regular meetings. If a member misses three consecutive meetings, the Chairperson(s) may ask the TBEP staff to solicit replacements for CAC consideration at the next regularly scheduled meeting. For those representatives in violation of the attendance requirements who are appointed by Policy Board members, the TBEP staff will ask the Policy Board to nominate a new representative to the CAC.

After missing two consecutive meetings, a member will be notified of impending forfeiture of their seat on the CAC. A member may choose to remain on as a reserve member for the period of one year.

9. **Voting Rights**

A quorum shall consist of more than half of all CAC members. Each member shall have one vote.
10. **Conflict of Interest**

No member of the CAC or staff representative shall participate in any decision or vote which would constitute or appear to be a direct conflict of interest. Members shall state any potential conflicts of interest prior to any discussion and abstain from voting on that issue.

As approved by the Policy Board, the TBEP Management Board, TAC and CAC members, acting as a TBEP Advisory Committee or as individual members representing the Management Board, TAC or CAC, also cannot support or oppose specific projects or permits.

11. **Staff Support**

Staff support for the CAC shall be provided by the Tampa Bay Estuary Program. The staff shall be responsible for summarizing meetings, shall transmit notices and agendas to the membership, and shall provide a copy of the summary of the previous meeting to each member prior to the next regular meeting. The staff will provide assistance in scheduling and procuring appropriate facilities for CAC meetings.

12. **Adoption/Amendment of Bylaws**

These bylaws are adopted upon an affirmative vote of at least two-thirds of the CAC members present at the March 26, 2014 meeting. Amendments shall be proposed in writing and circulated to the CAC members at least seven days in advance of any regular CAC meeting or special meeting called for that purpose. Changes to the bylaws caused by a change in the name of the Tampa Bay Estuary Program resulting from the interlocal agreement will be automatic and pre-approved by the CAC. These bylaws and any amendments become effective on the date of concurrence by the Community Advisory Committee and shall replace in their entirety the bylaws adopted in May 28, 2008.