



# Houston Ship Channel TREES Program

## Trees & Riparian Enhancement of Ecosystem Services (TREES)

**Background:** *Houston Ship Channel TREES Program* (formerly *Port of Houston TREES program*) is a multi-year, multi-partners collaborative program by Houston Wilderness, Port Houston, Houston Health Department, Buffalo Bayou Partnership, and multiple municipalities and private business along the Houston Ship Channel and Galveston Bay that is focused on enhanced ecosystem services through targeted large-scale tree plantings. The HSC TREES Program is accomplished through a comprehensive tree inventory and installation of thousands of native trees along Lower East Buffalo Bayou, and 25 miles of the Houston Ship Channel, using targeted native tree species, GIS-based data mapping, and avian analysis.

**Goals & Impacts:** The Port of Houston landscape is distributed over a 25-mile long chain of land areas that are utilized for storage and active port operations but still provide significant green spaces. The HSC TREES Program identified the number and species of trees that already existed and now targets locations along the Ship Channel where additional native trees can be planted. The ability to conduct a comprehensive inventory of a large-scale riparian corridor allowed the program partners to analyze and value this riparian ecosystem more effectively and gain valuable insight into the impacts of the ecosystem services and how to enhance them.



A GIS-based database tracks the trees inventoried, and the number and tree species planted. Houston Wilderness staff researched, calculated and ranked the ecosystem services values associated with native tree species in our region. Based on these rankings, the top 17 “Super Tree” species are targeted for large-scale plantings along the riparian corridor. These native *Super Tree* species were ranked in priority based on their respective levels of air pollution absorption (GHGs), water absorption and carbon sequestration. Large-scale native *Super Tree* plantings provide a multitude of ecosystem services - increased air & water quality, erosion control, phytoremediation and habitat enhancement. For more information, please see Houston Wilderness website: <https://houstonwilderness.org/houston-ship-channel-trees-program>

**Project Breakdown:** Phase 1, 2 and 3 are divided into 5 different sections throughout the 25 miles Houston Ship Channel riparian corridor. To date, over 30,904 native trees have been planted under this Program with many more planned in 2021-2025. The *Houston Ship Channel TREES* program will be particularly impactful to the natural environment and human health and welfare in the industrial and residential areas along the Houston Ship Channel.

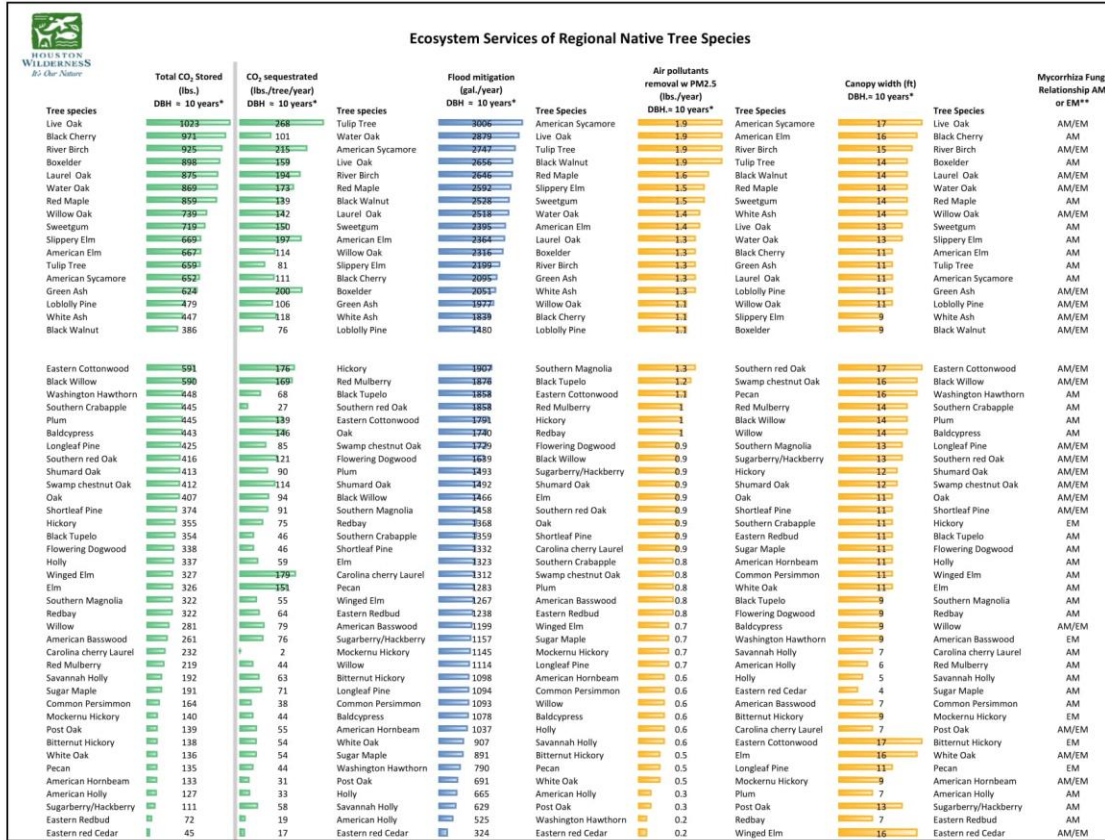
- Phase 1:* Port Houston-owned properties
- Phase 2:* Private landowners along Port Houston
- Phase 3:* Public properties along the Houston Ship Channel





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**References:**  
 Native tree species selected from City of Houston tree ordinance  
 \* Total CO<sub>2</sub> stored and CO<sub>2</sub> sequestration Calculated with CURR Carbon Calculator (CTCC)  
 \* Flood mitigation, Air pollutants removal calculated with i-Tree planting tool  
 Annual value calculated = total 10 year - total 9 year  
 Flood mitigation = Rainfall Interception + avoided runoff  
 Air pollutants include O<sub>3</sub> + NO<sub>x</sub> + SO<sub>2</sub> + small particulate matter (PM<sub>2.5</sub>)  
 \* Biogenic-VOC emission rate includes Isoprene and Monoterpenes volatile organic compounds  
 \* Diameter at breast height (DBH) - calculated for each tree species when approximately 10 years old  
 \* The references of the arbuscular mycorrhizal (AM) and ectomycorrhizal (EM) structural characteristics:  
 \*\* Teste, François P., et al. "Dual-mycorrhizal Plants: Their Ecology and Relevance." *The New Phytologist*, vol. 225, no. 5, 2020, pp. 1835-51, <https://doi.org/10.1111/nph.16190>.  
 \*\* Hekau, Heike, et al. "Mixing Tree Species Associated with Arbuscular or Ectotrophic Mycorrhizae Reveals Dual Mycorrhization and Interactive Effects on the Fungal Partners." *Ecology and Evolution*, vol. 11, no. 10, Wiley, 2021, pp. 5424-40, <https://doi.org/10.1002/ece3.7437>.  
 \*\* <https://planning.treecools.org/>  
 \*\* <https://extension.okstate.edu/fact-sheets/mycorrhizal-fungi.html>  
 \*\* <https://www.lebanonturf.com/education-center/tree-shrub-and-flower-care/mycorrhizal-types-on-important-plants>  
 \*\* <https://www.arboristnow.com/news/mycorrhizae-my-favorite-kind-of-fungi>