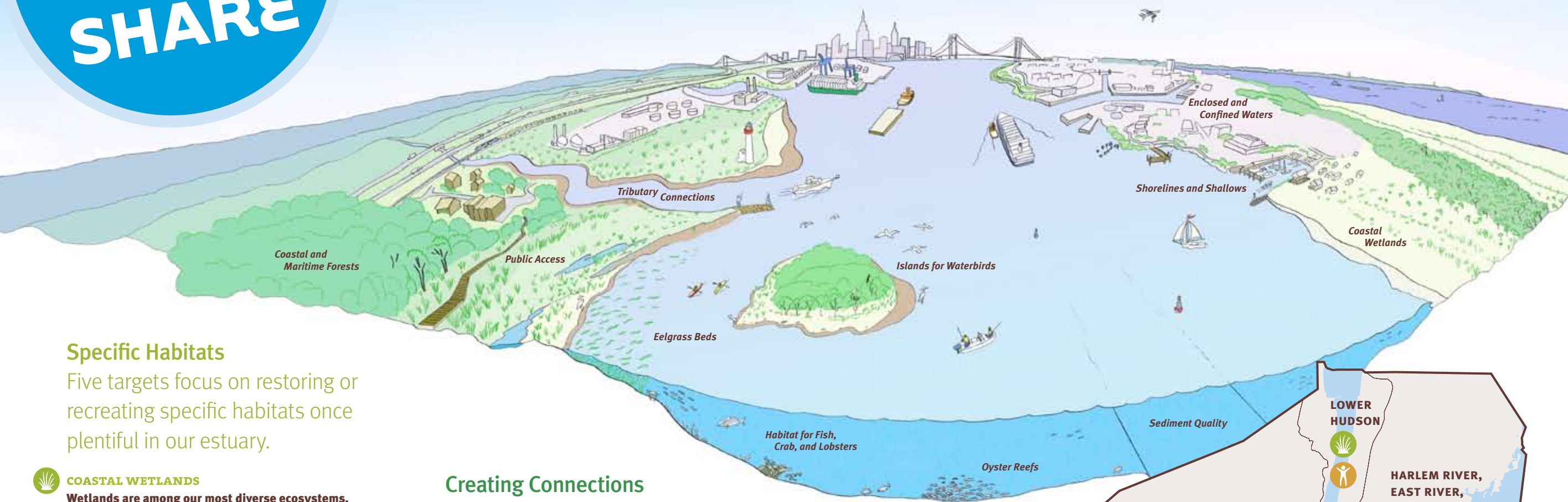


the WATERS we SHARE

HARBOR ESTUARY RESTORATION PLAN

Eleven Target Ecosystem Characteristics guide the Comprehensive Restoration Plan. These targets represent what is desirable and achievable and focus on the specific habitat types, support structures, and

public health and social values that are key to a healthy estuary. Below is a detailed look at the eleven targets, the plan for carrying them out, and the positive impact they will have for future generations.



Specific Habitats

Five targets focus on restoring or recreating specific habitats once plentiful in our estuary.



COASTAL WETLANDS

Wetlands are among our most diverse ecosystems.

Coastal wetlands are the transitional regions that connect the estuary's open waters to dry land. Their tall grasses provide a lush habitat for wildlife. Wetlands also prevent land erosion by providing flood control and absorbing wave impact, and they filter and detoxify water before it reaches the sea. Nearly 80% of the wetlands in the estuary have been drained for development, but with targeted efforts many can be renewed or recreated.



ISLANDS FOR WATERBIRDS

The "Harbor Herons" return.

Some of the most visible predators in the estuary's food web, long-legged wading birds play an important role in regulating population dynamics throughout the region. Once so numerous that they were known as the "Harbor Herons," ibises, egrets, and herons were nearly wiped out in the first half of this century due to hunting, pollution, and habitat loss. Careful observers will see that they have begun to make a comeback as a result of efforts to conserve island roosting and nesting sites.



COASTAL AND MARITIME FORESTS

Restore five hundred acres of native forest.

Found on the fringe of seacoast habitats, maritime forests are unique and dynamic ecosystems. Their trees are often stunted by salt spray and high winds and may grow in unusual, gnarled shapes. These hardy forests provide critical refuge, food, and resting spots for migratory birds, yet most have been destroyed by timber harvests or development. Reintroducing maritime forests will help restore this vital habitat.



OYSTER REEFS

Oysters create habitat for fish and other creatures.

Oyster reefs are intricate underwater structures made up of live oysters and layers of empty shells. Reefs act as natural breakwaters, and their deep crevices create ideal hiding places, feeding grounds, and egg attachment sites for many other species. As they feed, oysters themselves filter sediment from the water. The estuary supported a thriving oyster industry up until the late 1800s when pollution and over-harvesting virtually eliminated them from the region. Reintroducing oyster reefs will help naturally filter contamination and improve water clarity.



EELGRASS BEDS

Eelgrass is one of the most valuable estuary plants.

Eelgrass is one of the few plants that flourishes almost exclusively in estuary environments. Eelgrass beds are highly productive systems that provide habitat and nursery grounds for dense communities of fish and invertebrates. Their long shoots also produce valuable nutrients, filter contaminants, and help counteract land erosion. Once plentiful, only a few small eelgrass beds now exist within the estuary.

Creating Connections

Two targets help create links between related habitats.



SHORELINES AND SHALLOWS

Reconstruct shorelines to provide critical transitions.

Centuries of commercial and industrial activity have replaced many of the estuary's natural shorelines with piers, docks, and bulkheads. These structures often eliminate the gradual transition from deep to shallow water on which many species depend. Replacing abandoned piers with sloped shoreline and creatively adapting man-made structures can lessen their impact on the estuary's ecology.



HABITAT FOR FISH, CRAB, AND LOBSTERS

Many species need access to different types of terrain.

Several estuary creatures, including the American lobster, blue crab, and striped bass, are transient species, requiring one type of habitat for spawning, another for raising young, and yet another to support fully-grown adults. Restoring and linking habitat types like oyster reefs, eelgrass beds, and tidal marshes will enable transient creatures to carry out their full life cycles.

Support Structures

Two targets focus on the estuary's physical landscape, balancing necessary urban infrastructure with environmental restoration.



TRIBUTARY CONNECTIONS

Removing barriers helps fish access fresh waters upstream.

Freshwater river and stream habitats are linked to the estuary ecosystem through a network of tributary connections. Each year, migratory fish must navigate these connections, swimming many miles upstream to spawn. Man-made barriers such as dams and tide gates can prevent fish from reaching egg-laying sites, threatening the future of these fish populations. Removing unnecessary barriers and retrofitting others with innovations like fish ladders can reconnect upstream habitats with the rest of the estuary.

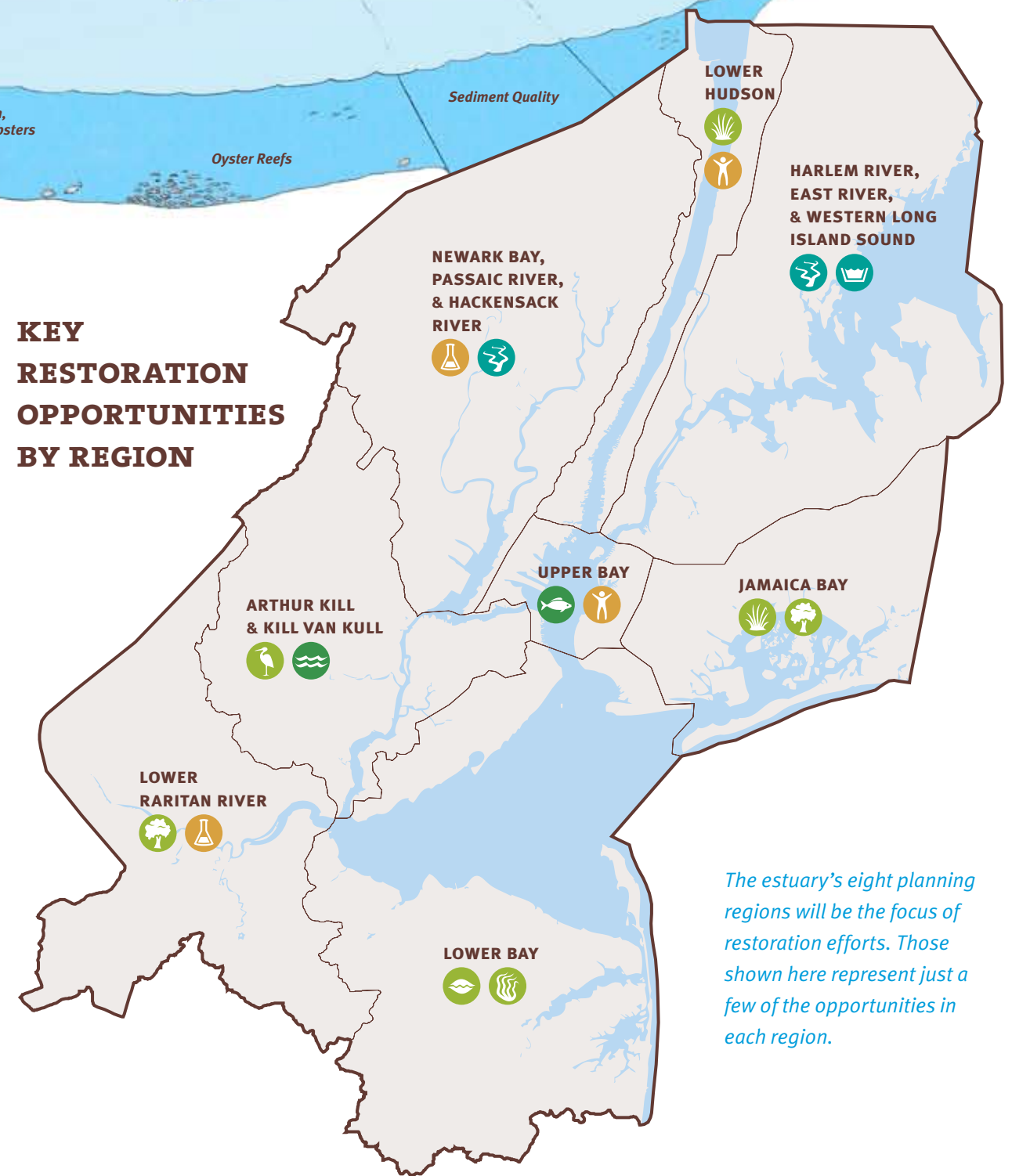


ENCLOSED AND CONFINED WATERS

Improved water quality is possible.

Isolated or poorly-flushed waterways such as dead-end canals often collect pollution discharge and storm water runoff. This results in contamination, sparse vegetation, and noxious odors. Improvements to water quality in enclosed waterways may make these areas once again inhabitable for the estuary's fish and wildlife.

KEY RESTORATION OPPORTUNITIES BY REGION



The estuary's eight planning regions will be the focus of restoration efforts. Those shown here represent just a few of the opportunities in each region.

Health and Social Values

Two targets enhance the wellbeing of people living within the estuary.



SEDIMENT QUALITY

Contaminated sediment needs to be removed or isolated.

For centuries, the estuary has been a dumping ground for chemical and industrial wastes, including pesticides, dioxins, PCBs, and heavy metals. These contaminants settled on the harbor floor, where they've remained for decades. Sediment contamination is harmful to wildlife, poses public health risks, and reduces the port's commercial value. Isolating or removing these contaminants will provide economic benefits for the port as well as reduce health risks.



PUBLIC ACCESS

Everyone can enjoy the waters we share.

The estuary is a precious natural resource to be enjoyed. Enhancing public access ensures that the estuary's millions of residents and visitors can take advantage of its benefits. This includes everything from boat launches and swimming areas to waterfront promenades, scenic vistas, pedestrian routes, and bike paths. Access provides everyday opportunities for people to enjoy peaceful refuge from the stresses of urban life.



To learn more about the estuary and the Comprehensive Restoration Plan, download the full report, or find out what you can do to get involved, visit www.TheWatersWeShare.org.