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Massive effort to restore Hamilton marshland

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The black ooze pouring out the end of a seven-mile-long pipe onto the old Hamilton Airfield runway is beginning to bring new life to marshland that was diked and dried more than a century ago.

"Not very pretty, is it?" said Eric Jolliffe, environmental planner with the U.S. Army Corps of Engineers, as he watched the chocolate syrup-like material flow into a growing pool on a foggy morning. "But that's good stuff."

The sludge coming out of the tube is a rich mix of sand and soil pulled from the bottom of the Port of Oakland and piped to Marin, part of a \$200 million project funded by federal, state and local dollars that is the largest wetlands restoration program ever attempted on the West Coast.

An ambitious patchwork of local environmental groups, state and federal officials and agencies are charging ahead to bring back to life thousands of acres of vital, ecologically rich wetlands that were choked to death more than a century ago.

Birds are coming

The 760-acre tract - the military decommissioned the base in 1974 - will require nearly 7 million cubic yards of sediment. That is about 5 million tons of soil, enough to cover 700 football fields in material 3 feet high.

Ball fields, a polo field and even a skate park were bandied about as potential uses for the airfield over the years. But a cadre of environmental groups and state agencies, led by the California Coastal Conservancy, were determined to return the area to what it once was - a sprawling wetlands filled with a diverse array of plants, wildlife and waterfowl.

Although the process of pumping the dredge material to Hamilton will continue for seven years, birds are already being drawn to the site: ruddy ducks, hawks and egrets.

"Look, there is a red-tailed, look at the colors," said Jolliffe, as he admired the hawk's reddish-orange plumage. "The birds are already coming back. It's pretty amazing."

Perhaps even more remarkable is the effort to transfer tons of sediment from the Port of Oakland to Hamilton more than 20 miles away.

Managing an estuary

The restoration of Hamilton begins at the port, where the Army Corps is dredging 50 feet into the bay floor to allow for deeper channels that can accommodate bigger ships, making the port a better economic engine.

Decades ago, the material would have been put in barges, taken out to sea and dumped.

"There has been a whole sea change on the way people think on that," said Mill Valley resident Steve Crooks, a consultant with Phillip Williams and Associated Ltd., who is helping design the new Hamilton wetlands. "Managing an estuary is all about managing scarce resources, and probably the most scarce resource we have got in the Bay Area is sediment."

From the port the material is loaded onto 300-foot barges that are taken north by tug boat into the middle of San Pablo Bay, two miles east of McNears Beach County Park in San Rafael.

The barges hook up with an "offloader," a platform moored to piles in the bay that operates 18 hours a day. The offloader has a pipe that sucks up the material from the barge and simultaneously mixes it with bay water, which allows the mixture to more easily travel to Hamilton by pipe. The apparatus could not be placed closer to Hamilton because the bay is not deep enough near the site.

Two miles north into its seven-mile journey in the 24-inch pipe, a 7,000-horsepower "superbooster" grabs the slurry and gives it an extra shove to give it enough momentum to get to Hamilton, where another smaller booster gives it a final push.

Once at Hamilton, a "Y" splits the pipe and allows engineers to direct the sediment into different "cells" on the property that have been created by earthen levees.

"We are doing two things at once: dredging, then using that material to create a wetland," said Irene Davies, Hamilton project manager with the Army Corps. "It's a real exciting project."

Seasonal wetlands

It's also a bit of an experiment. As planners re-create tidal wetlands - wetlands along the lip of the bay - they will try to build seasonal wetlands as well. Seasonal wetlands are situated away from the bay, get wet in winter and dry in summer. They have never been created using dredge material.

"Seasonal wetlands are very sensitive to hydrology and salinity, where the tidal wetlands create their own conditions," Crooks said. "It's important to have both together. When tides come in, birds need a place to rest and can go to seasonal wetlands."

About 200 acres will be seasonal wetlands and 400 acres tidal wetlands, with the remaining acreage remaining dry.

While seasonal wetlands is a new venture, there has been success re-creating tidal wetlands from dredge material. At the Sonoma Baylands site along Highway 37, about 320 acres have been

restored to muddy wetlands. Once a hay field, white pelicans now splash and search for food and sandpipers dart in and out of the lapping water at high tide.

"Look at it now," said Jolliffe, who worked on the project, as he walked along a levee looking out over the misty and wet loam. "This shows how it can work. This is what Hamilton can be."

Varied plant, animal life

For the Army Corps of Engineers it's a bit of looking back in time to help create the future. Planners studied old maps from the 1800s, historic photos and dated drawings for a better understanding of what was at the airfield before the landscape was changed.

In the North Bay, up until the mid-19th century, there were some 55,000 acres of wetlands, providing ideal conditions for migrating waterfowl, a nursery for a variety of fish species and an incubator for plants. A potent mix of wetlands - tidal marshes, tidal flats, vernal pools, streams and creeks - provided optimal conditions for a myriad of plant and animal life.

As people settled nearby, they saw the areas of shallow water as locales where water could be diked and drained and the area claimed for agriculture and housing.

"The easiest place to build a house is where seasonal wetlands used to be," Crooks said. "You just build a shallow dike and you got land."

As the wetlands dried up, so did the number of species. Legions of fish, California clapper rail, brown pelicans, California black rail and salt marsh harvest mice, red-legged frogs, snowy egrets and great blue herons were lost, and today many are listed as endangered.

About 82 percent of San Pablo Bay's wetlands were diked by the time of the Great Depression. Today, about 10,000 acres remain as wetlands.

When the land was diked, it not only dried but constricted as well. The sediments from Oakland are needed to raise the ground surface of the site to a level near sea level. The tract is now some five to 10 feet below sea level.

The levy keeping bay water out of Hamilton could simply be breached, allowing water to flow in, and the wetland would return over time. But by using the dredge material, the process is accelerated by 20 to 50 years.

"That gives endangered species a better chance at survival," Jolliffe said.

Bel Marin Keys included

Even as is, the project is lengthy. Only so much dredge material is available each year, so it won't be until 2015 until the outward levy is breached. After that, sights will be set on Bel Marin Keys property to the north. The potential addition of an adjoining Bel Marin Keys parcel could expand the wetlands to 2,500 acres.

The Bay Trail, a project that aims to link the entire Bay Area with one trail, will eventually go through the wetlands.

Gail Wilhelm, an ardent aviation foe whose election as county supervisor representing Novato in 1978 doomed proposals for a county airport at Hamilton, hailed the plan to turn the runway into wetlands.

"We wanted this done 25 years ago, so it's good to see it finally happening," she said. "The wetlands are good for the food chain, fish stocks and migrating birds. They are a tremendous resource."

Concerns remain

While full of promise, there are areas of concern. Upland areas covered with dredge material have been a magnet for weeds because the soil is rich in nutrients. Sandy soils will be placed in such areas to curb weeds, engineers said.

The project has rubbed some Hamilton homeowners the wrong way, as they bemoan the loss of areas where they could stroll and walk their dogs. With heavy equipment on site, the Army Corps has put the areas off-limits for safety reasons.

And with work going on 18 to 24 hours a day there will also be some noise, akin to a small waterfall, as the wet material flows from pipes, officials said.

Fishermen have complained about the semi-buoyant pipe in the bay in the middle of what is a prime sturgeon fishing area and worry about fouling their gear, losing props or rudders or otherwise damaging boats. The pipeline is marked with buoys and flags.

"It's all part of the growing pains, but the project is worthwhile," Jolliffe said.

Others have voiced concern about toxicity of material taken from the bottom of a busy urban port.

"We are down into stuff that has never seen man-made contaminants. It's all been tested extensively. The top layer is removed," he said.

The Army Corps of Engineers also swabbed the bay floor after the Cosco Busan container ship leaked 58,000 gallons and found no contamination.

"I am absolutely thrilled this construction has finally started," said Barbara Salzman, president of the Marin Audubon Society. "It's been more than 20 years of seeking funds and opposing developments.

"We are looking forward to see it restored to its former glory as a wetland."

Within a few weeks, the Army Corps will officially dedicate the project and it will then be up to humans to work to get the land to a point where a greater force can take over.

"We want to create a design, a template," Crooks said. "Then Mother Nature can run with it."

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