IMPORTANT WATERFOWL FOODS ALONG THE GULF COAST AND EFFECTS OF HURRICANE HARVEY

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Fly anywhere over the Texas Gulf Coast and one can realize a "birds-eye" view of the landscape. Muddy chocolate-soup waters generally mean less wild foodstuffs and probably no significant waterfowl, but clear waters generally mean food to the birds especially if the waters have been properly cultivated or environmental conditions allowed good growth of beneficial plants and invertebrates. Birds flying high over the vast wetlands of Coastal Texas can instantly tell if wetlands or ponds—either man-made or natural—are worthy of further "buffet" inspection.

A POND FILLED WITH WATER IS NOT A "DUCK POND"

Water dispersed over a parcel of land does not make it good waterfowl habitat, especially when it comes to moist-soil units common along the Gulf Coast. Moist-soil units are generally ephemeral along the Gulf Coast, requiring constant, sometimes yearly manipulation to prevent succession of undesirable plant types for waterfowl. Manipulation includes man-made disking, shredding, burning, herbicide applications and natural manipulations such as freshwater flooding and saltwater intrusion. Timing of the man-made manipulation varies from area to area and even pond to pond.

As Todd Merendino, Manager of Conservation Programs for Ducks Unlimited, said, "Management of waterfowl habitat is not rocket science…it is much harder!"

This is because Mother Nature is so unpredictable and the variables are extensive—rains, drought, temperature fluctuations, plant germination, timing of wetlands manipulation, sunlight penetration and lengths, all play into how a wetland will develop, especially when it is ephemeral. But when wetlands are managed right the results can lead to extraordinary variety of critical biomass for wintering waterfowl of many species, many with specific dietary preferences.

Along the Texas Gulf Coast, Canvasbacks will favor sago pondweed of larger bodies of freshwater; Redheads migrate every year in mass to the shoal grass of the middle and lower coasts; Gadwalls relish aquatics like southern naiad; and, Snow Geese prefer seed-producing manmade crops such as rice and corn. There are six different types of food sources that wintering waterfowl forage on along the Gulf Coast: algae, floating plants, submerged plants, emerged plants, cultivated crops and invertebrates.

ALGAE

Algae can be both a beneficial and harmful plant to waterfowl. Muskgrass (chara), with its musty garlic-like odor, is both readily consumed by many species of ducks along with providing habitat and detritus for many aquatic invertebrates. Harmful algae include planktonic and filamentous types, both of which can readily block out sunlight for desirable aquatics and emergents. Additionally heavy "blooms" of planktonic algae can cause oxygen depletion that can be lethal to aquatic organisms.

FLOATING PLANTS

True floating plants are defined as green plants not attached to the bottom. Most floating plants are not consumed by waterfowl—with the exception of the duckweeds—and are detrimental to the development of beneficial foods by blocking sunlight and causing

dissolved oxygen depletion. Many floating plants are non-native aggressive invader species—giant salvinia, common salvinia, water hyacinth, water lettuce—all of which should be controlled and reported to Texas Invasives at *www.texasinvasives.org.*

SUBMERGED PLANTS

Submerged plants—aquatics—are one of the most important food sources for ducks. In order for aquatics to flourish, they need healthy wetlands with clear water where the sunlight can penetrate in part or in whole to the bottom of the pond, generally in shallow water that is protected from strong disturbances of wind and current. Wetlands are constantly in succession and require periodic manipulation of undesirable plants and stimulation of desirable plants. Important common aquatic plants of the Texas Gulf Coast include coontail, naiad, various species of pondweed and widgeon grass.

EMERGED PLANTS

Emerged plants are defined as rooted plants that grow above the water's surface, mostly in shallow waters or moist shorelines. Common and beneficial foods for waterfowl include arrowhead, barnyard grass, cow lily, dollar bonnet, duck potato, duck salad, frog's-bit, pickerelweed, various varieties of sedges, smartweed, soft and spike rush, three-square and summer primrose.

CULTIVATED CROPS

While the Texas Gulf Coast has lost a significant amount of its rice base due to many factors such as development, drought, lack of Lower Colorado River Authority waters and low commodity prices, it is still an important food for migrating and wintering waterfowl along the coast with 10,000 acres of flooded rice supporting upwards of 120,000 waterfowl. Blue-winged Teal flock to flooded second-cropped rice, and Northern Pintails also favor rice fields flooded after harvest. Both Snow Geese and White-fronted Geese seek areas with large-scale rice production around towns such as Eagle Lake, Garwood, El Campo and Bay City.

AQUATIC INVERTEBRATES

Aquatic invertebrates, which include snails, leeches, mollusks,

Muskgrass, although resembling submerged plants, is actually a multicellular algae plant, readily consumed by waterfowl.

Duck Salad is a common aquatic emergent plant often found growing in ponds grown in rice along the mid-coast of Texas.

Duck Potato is a valuable food source for waterfowl which consume the tubers and seeds.

A variety of different species of Pondweeds provide fruits and tubers for waterfowl.

worms, crustaceans and insects, are a very important food source for ducks late in the winter and early in the springtime prior to their migration north. They play a very crucial role in the diet of female ducks of all species as they prepare for the breeding and nesting season. Invertebrates are a rich source of protein, calcium for eggshells and other key nutrients for overall health. Overuse of pesticides has been shown to be very detrimental to aquatic invertebrates of all types.

MANAGEMENT OF MOIST-SOIL WETLANDS

Periodic manipulation of the wetlands is a must along the Gulf Coast in order to keep wetlands healthy. Four keys elements that are essential to the management of moist-soil units. First, there must be clear enough water to allow sunlight to penetrate the water column and reach the bottom to allow plant growth. Second, it is imperative that noxious plants, including unwanted grasses and undesirable floating plants such as water lilies, are controlled. Third, the wetlands must be ideally flooded no later than September to maximize plant growth in the extended hours of daylight along with higher temperatures. Fourth, the wetlands must be maintained with moisture, as allowing them to dry out late in the season will kill the "crop" of grown vegetation.

IMPACTS OF HURRICANE HARVEY ON WATERFOWL HABITAT

While Hurricane Harvey had shattering effects on families along its long swath from the Coastal Bend area of Rockport to the Sabine River in East Texas, there may be a silver lining when it comes to waterfowl habitat. Surfeit water across landscape appears to have helped many wetlands flourish.

The approach and magnitude of Hurricane Harvey had many waterfowl managers worried including Kevin Kraai, Waterfowl Program Leader for the Texas Parks and Wildlife Department.

"At first I thought this was not looking good for our waterfowl habitat along the coast but as the water receded and reports started trickling in from various areas along the coast, I was pleasantly surprised," Kraai said. "The water drained off the

Southern Naiad is a very common submerged aquatic of moist-soil units and favored by Gadwalls and Widgeon.

Spike Rush provides food to waterfowl from its seeds, rhizomes and tubers.

Barnyard grass is an important plant species for seed loving ducks such as Green-winged Teal and Pintails.

Smartweed is a perennial plant that provides seeds eaten by a variety of wetlands wildlife.

Healthy wetlands include a variety of species of both submerged and emergent plants. In turn, they provide a substrate for late season invertebrates.

Developing and maintaining healthy wetlands along the Texas Gulf Coast is paramount to assure waterfowl return to their nesting grounds in excellent shape.

Flooded rice fields provide valuable waterfowl habitat, and for every 10,000 acres flooded it supports 120,000 waterfowl.

landscape quicker than expected and overall the marsh did a good job in recovering relatively quickly and in time for the arrival of the main push of waterfowl in November."

He continued, "In many cases the waters from Hurricane Harvey helped the waterfowl habitat and things look like they are turning out for the better along the coast. The ducks seem to like it, and numbers are currently outstanding for the opening of waterfowl season."

Inland moist-soil units common along the Gulf Coast were jump-started for those who had their land prepared in time. Taylor Abshier, Ducks Unlimited Conservation Biologist, said that he feels like Hurricane Harvey "reset the clock" on wetlands along the middle Gulf Coast. Initially, a 5-to-6-foot surge of saltwater hit the coast, followed by a flooding of the bay system by heavy rains and rivers coming out of their banks.

"It freshened things, killing undesirable plants such as cattails, while at the same time appearing to have stimulated good aquatics," Abshier said.

The "reset button" may be beneficial for a number of years to come and not just for inland wetlands, but bay ecosystems as well, he said.

"However, just four short weeks after the storm we were kicking up dust on the dirt roads as the landscape was quickly desiccated," Abshier said. "It would have been nice to have rain showers every week or so after Harvey to keep the wetlands alive and only those fortunate enough to have water wells did so in many parts of the region."

Travis Peterson with the Thunderbird Hunting Club located near Bay City agreed.

"Duck veggies were jump-started all at once with the abundance of hurricane-related water on our land, but shortly afterwards we started to dry out quickly and turned on every one of our water wells to keep our moist-soil units alive and well," Peterson said.

U.S. Fish and Wildlife Technician Ervin Hart, working at Matagorda Island, reported that the shoal grass, so important to the estimated 80 percent of wintering Redheads in Texas, is thick and comparable to other years.

Michael Rezsutek, Texas Parks and Wildlife Department Project Director for the Upper Coast Wetlands, said the J. D. Murphree Wildlife Management Area, an immense 24,498-acre tract of fresh, intermediate and brackish water coastal marsh on the upper coast of Texas, had an extra 7 feet of water over their impoundments to the north, but they were able to pump out all the extra water, receiving only minor damage to their units. But to the south of the Intercoastal Canal, the marsh sustained some significant damage to its vast areas of widgeon grass in the marsh, most likely due to the turbidity of the water.

Private waterfowl clubs in the area suffered damage to their outside levees. One of the cruel ironies of having too much water is that it breaches levees and one day you have way too much water and the next day the levees blow out, leaving one high and dry.

Matt Nelson saw more than two feet of water lay for weeks over the saltwater marsh of Justin Hurst Wildlife Management Area near Freeport.

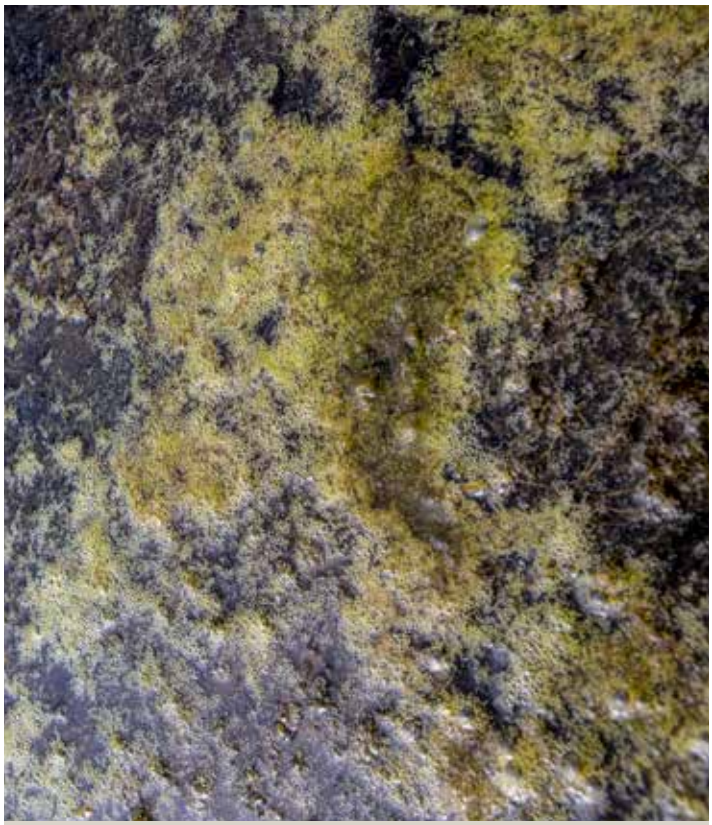
"The marsh has been badly burned from all the freshwater and of concern is the possible vegetation die-off, which could lead to erosion of the marsh ecosystem, Nelson said. "Time will tell this spring, but surprisingly there are a lot of ducks in the area, and it is speculated that they are feeding on invertebrates. Other WMAs along the mid-coast were in good shape—such as Mad Island near Collegeport—with no major setbacks."

David Butler, Texas Parks and Wildlife Department waterfowl specialist for the mid-coast of Texas, found floodwaters from the San Bernard and Brazos rivers had also burned much of the saltmarsh downstream, but he was confident that things would bounce back.

"The good news is that the effects of the flooding will open up areas in the marsh that we normally could not open up with conventional means such as disking and burning," Butler said.

The Texas Gulf Coast has been defined as an important and crucial wintering ground for both ducks and geese. Developing and maintaining healthy wetlands along the Texas Gulf Coast is paramount to assure waterfowl return to their nesting grounds in excellent shape for the rigors of producing the next generation of birds.

An excellent source of waterfowl food types and management can be found at Texas A&M University website www.aquaplant.tamu.edu/plant-identification/ *and the Natural Resources Conservation Services document* www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_016986.pdf.



Harmful filamentous algae blocks sunlight for the growth other aquatics and depletes oxygen in wetlands.