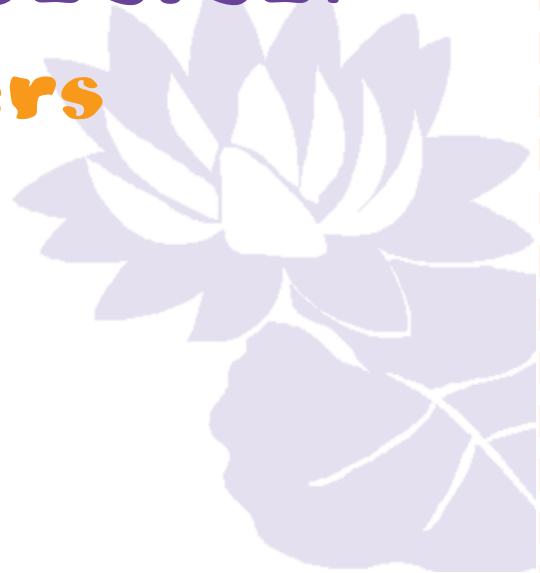


Environmental Concern Inc. Presents

Wet Your Appetite:

Cuisine for Critters

Recipes



Tijuana River National Estuarine Research Reserve

Light-footed Clapper Rail

The Tijuana River Reserve is a beautiful and diverse wetland located along the border between Southern California and Mexico. The Tijuana River was designated a National Estuarine Research Reserve (NERR) in 1981 because of its unique environment. These coastal wetlands, a rarity among the urban cityscapes of the San Diego area, are also home to many animal species.



credit: Tijuana River National Estuarine Research Reserve

The Light-Footed Clapper Rail (*Rallus longirostris levipes*) is an endangered wading bird that makes its home within the marshes of the Tijuana River NERR. The shy Light-Footed Clapper Rail has distinctive long legs, a downward curved beak, and large feet. The Light-Footed Clapper Rail was added to the U.S. Fish and Wildlife Service's Endangered Species List in 1970.

This unique and rare bird enjoys a nutritious diet consisting mainly of invertebrates such as crabs, mussels, clams, worms, and occasionally plants, fish, and tadpoles. The 'Shellfish Surprise' incorporates 3 native invertebrates and 2 native aquatic plants into a delicious dish that any Light-Footed Clapper Rail would surely love.

Paige Donahue, Notre Dame Preparatory School
Towson, MD

Celebrate Wetlands

World Wetlands Day is February 2nd!

To help celebrate World Wetlands Day, in 2008 Environmental Concern introduced a creative writing competition with a twist. Students in grades 8 -12 in the U.S. and its territories were challenged to write a creative wetland recipe. Here's the twist. The recipe had to be written for a specific wetland organism living in one of the twenty-two U.S. Ramsar Wetlands of International Importance.

Wetlands of International Importance are designated by the Ramsar Convention on Wetlands. Currently there are over 1500 Ramsar sites worldwide and 23 in the U.S. These wetlands act as critical habitat for many plant and animal species. The contest's goal was to get students around the country familiar with these international wetland treasures.

Six winning entries were chosen for 2008. Enjoy reading these creative concoctions, but remember leave the cooking to the critters!

For more information about the contest and how to enter next year, go to www.wetland.org

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Light-footed Clapper Rail

Shellfish Surprise

Appetizer

1 cup horse mussel meat finely chopped
½ cup clam meat coarsely chopped
¼ cup yellow shore crab meat coarsely chopped
1 ½ cups bread crumbs
1 tsp. salt grass ground into fine powder
2 tbs. fish oil
Pickleweed – *Salicornia* spp. (garnish)

Makes 32 servings

In a small bowl, combine the bread crumbs and salt grass powder. Set aside. In a second bowl, mix together the mussel, clam, and crab meat. Separate the shellfish meat mixture into small balls-about a ½ inch in diameter.
Roll each ball around in breadcrumb mixture until evenly coated. Lightly brush each shellfish ball with fish oil. Grill over open flame for 2 to 3 minutes or until golden brown and slightly crispy.
Serve warm and garnish with pickleweed.

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Pelican Island National Wildlife Refuge

Fiddler Crab

The Pelican Island National Wildlife Refuge, located on the east central coast of Florida, was designated as America's first wildlife refuge with President Theodore Roosevelt's approval in 1903. The wetlands are home to "thriving bird rookeries", that became well known with German immigrant Paul Kroegel's homestead guarding of the native birds. Pelican Island's ecosystems are quite diverse since the refuge lies between both temperate and subtropical zones. The wetlands include sea grass beds, salt marshes, mangrove trees, and maritime hammocks.

The Fiddler Crab (*Uca pugnax*) lives amongst the wetlands of Pelican Island and typically feeds on algae, microbes, fungus, and detritus (decaying plant and animal matter). The detritus provides the essential nutrients the crabs need. Fiddler crabs dig burrows down in the mud and sometimes construct intricate tunnel systems to avoid predators, such as fish, raccoons, and water birds. In order to find a mate or challenge competitors, male fiddler crabs often use claw waving as a form of arm-wrestling to show strength and dominance. The crabs also molt their hard shells when they grow, and have to hide away in their tunnels when they are "soft-shelled."



credit: USFWS/George Gentry

This recipe is appropriate because it incorporates the essentials of the fiddler crab's diet into a much sweeter, more delectable cake, which therefore will provide the crab with not only sufficient nutrients, but also a tasty delicacy.

Darren Schweitzer, Saugus High School
Saugus, CA

Delaware Bay Estuary

Diamondback Terrapin

Diamondback Terrapins are believed to be the only turtles in the world that live exclusively in estuaries; brackish-water areas like bays, swamps, and marshes. Many terrapins live in the Delaware Bay Estuary, a large outlet of the Delaware River on the United States' Eastern seaboard, bordered by New Jersey and Delaware. The Bay is 782 square miles in area. Its fresh water mixes with the waters of the Atlantic Ocean.



Terrapins have webbed feet and 13 diamond-shaped scales called scutes on its brown, gray, or black shell top and black spots and wiggly marks on the reptile's whitish skin. Terrapins were once very plentiful until the early 1900s, when terrapin soup became a delicacy. Overharvesting forced terrapins to near extinction. Diamondbacks are listed as endangered species in Rhode Island; threatened species in Massachusetts, and "species of concern" in Georgia, Delaware, Louisiana, North Carolina, and Virginia. Diamondbacks are almost completely carnivorous scavengers, but will not pass up a live morsel. They eat hard-shelled prey including aquatic snails, crabs, clams, small bivalves (e.g., blue mussels), carrion, fish, marine worms, and some marsh plants.

Vaughn Williams, Fairplay Middle School
Douglasville, GA

Fiddler Crab Cakes

Appetizer

Tartar sauce
3 cups detritus
1/3 cup fresh breadcrumbs
2 tablespoons mayonnaise
2 teaspoons algae
1 teaspoon Worcestershire sauce
¼ teaspoon salt
½ teaspoon mixed microbes
¼ teaspoon fungus
1 egg
2 tablespoons butter
Lemon wedges

Break up detritus with claws in large bowl. Mix in all remaining ingredients except butter, tartar sauce and lemon wedges. Pinch mixture into 8 portions. Place four portions onto a medium heated, buttered sand dollar. With big claw, flatten each portion into a patty. Fry patties until golden on underside; turn and brown other sides. Keep patties warm in mud burrow and repeat with other 4 portions. Serve cakes with Tartar sauce and lemon wedges.

Serves: 4. Perfect for a whole cast of crabs!

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Terrapin Seafood Salad

Entrée

3-4 small shoots of marsh plants per serving crab shell
1 cup of finely chopped marsh plant roots
2 ½ pounds of chopped Periwinkle snails
2 pounds of razor clams
1 pound of blue mussels
1 pound of chopped crabs
2 pounds of medium shrimp
½ cup of chopped carrion
1 cup of chopped fish
15 oysters
½ cup of marine annelids
1 pound of chopped Fiddler crabs

¼ cup of sea water
2 tablespoons fish basil
2 tablespoons of chopped insects

Toss snails, oysters, mussels, chopped crab, shrimp, carrion, fish and worms together in a bowl. After tossing the seafood mixture, add insects and basil to season. Toss lightly to mix. Place 3-4 plant shoots in shells. Add seafood mixture on top; lightly sprinkle with finely chopped roots of marsh plants. Garnish with any remaining plant shoots.

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Forsythe National Wildlife Refuge

Horseshoe Crab

The Forsythe National Wildlife Refuge is located in southern New Jersey, along the Atlantic coast north of Atlantic City. The refuge was created in 1984 to primarily protect the tidal wetlands and shallow bay area habitats for migratory water birds. The refuge is an important link in the network of national wildlife refuges administered nationwide by the U.S. Fish and Wildlife Service. The refuge is home to many different wildlife species. One of the signature species is the horseshoe crab, *Limulus polyphemus*.



credit: USFWS/Robert Pos

The horseshoe crab possesses a hard shell that resembles a horse hoof, thus earning the name “horseshoe crab.” However, the Horseshoe Crab isn’t really a crab. It is more closely related to scorpions, ticks and land spiders. The horseshoe crab has a long harmless tail spine that extends from its abdomen and can reach a length of 60 cm. This crab is a sturdy creature and tolerates wide changes in temperature. As a scavenger, it feeds on small types of marine animals, such as mollusks, various worms and other small crustaceans.

This recipe combines two of the major animals that horseshoe crabs feed on, juicy lugworms and delicious mollusks into a treat sure to please the appetite of any hungry horseshoe crab.

Ananya Marathe, Beachwood High School
Beachwood, OH

Connecticut River Estuary Complex

American Black Duck



credit: USFWS/ Gene Nieminen

The Connecticut River Estuary Complex (CREC) is located along the lower stretch of the Connecticut River from Old Saybrook to Cromwell. The freshwater tidal marshes, floodplain forests, upland shrub lands, and grasslands associated with CREC provide essential food, shelter, and breeding grounds for rare species such as the bald eagle, puritan tiger beetle and the shortnose sturgeon.

Anas rubripes, the American Black Duck, is one of the common inhabitants of CREC. These birds form groups of 20 to 100, and migrate farther south as the marshes freeze. The ducklings eat mosquito larvae and other aquatic invertebrates. The adults consume parts of various aquatic plants, snails, tadpoles, mussels, clams, and crops found nearby such as corn and potatoes.

In addition to providing the ducks with essential vitamins and nutrients, the Connecticut-style Bi Bim Bab dish helps to control the population of a non-native invasive aquatic plant – the water chestnut – by incorporating the plant into the dish as a plate.

Nazumi Matsumoto, Morristown-Hamblen High School
Morristown, TN

Mollusk Brulee

Dessert

- 1 quart heavy cream
- 2 juicy Class Cephalopoda mollusks
- 1 cup of brown sugar
- 2 ounces of fish eggs (caviar)
- 2 quarts of sun-heated salt water
- 4 cut up polychaetes (preferably lugworms)
- 5 teaspoons vanilla extract

Makes 6 servings

Preheat oven to 325 degrees F.
Crush the mollusks together until a fine pulp is extracted. Then, place the cream, mollusks and its pulp into a medium saucepan set over medium-high heat and bring to a boil. When the mixture has boiled, remove from the heat and cover it and allow it to sit for 20 minutes. Then in a large bowl, whisk together the brown sugar, the vanilla extract and the fish eggs and blend them together until they make a smooth mixture. Add the cream a little at a time and stir continually. Pour the mixture into a large pan and pour sun-heated salt water into the pan. Bake until the mollusk brûlée is set, but still trembling in the center, which can be checked by inserting a shell in for about 45 to 50 minutes. After the mollusk brûlée is done baking, refrigerate for at least 3 hours. ENJOY!
Caution: be sure to let it cool or else your shell might get burned

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Connecticut-style

Bi Bim Bab

Entrée

- 3 cups seeds
- 1 cup corn (cook for ducklings)
- 1 cup chopped tadpoles*
- 1 cup chopped snails* (still in shell for freshness)
- 1 teaspoon salt
- 1 teaspoon sugar
- 1 teaspoon soy sauce
- 2 teaspoons sunflower oil
- ½ pound aquatic plants (of any kind desired or available) ex. fleshy roots, tubers, pondweed, etc.
- 7 cups water
- Ice for cooling aquatic plants
- water chestnut leaves
- nuts (optional)

*can be substituted by other aquatic invertebrates of your liking such as mussels or clams.

Wash seeds and place in the steam cooker with 2 cups of water. Let cook for 30 minutes. While the seeds are cooking, heat a frying pan, and add Sunflower oil, chopped tadpoles, snails, sugar, salt, and soy sauce. Sauté mixture until thoroughly cooked and take off the heat. Bring 5 cups of water to a boil and submerge the aquatic plants for a minute (or shorter if toughness is desired). Place them in icy water.
Once the seeds reach the desired consistency, divide into portions and place them on individual water chestnut leaves. Then cover the seeds with the cooked tadpole and snail mixture. Place the aquatic plants on top of the meat. Add corn (cook if for elderly or young) on top as the final layer. Sprinkle fresh seeds or nuts for decoration and serve.

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Catahoula Lake

American Alligator

The American alligator, which is at the top of its food chain, is very well suited for its environment in the wetlands of Catahoula National Wildlife Refuge. The refuge, which is located just east of Jena, Louisiana measures 25,000 acres. The refuge, established in 1958, provides a habitat and protection for a variety of animals including the American alligator. The American Alligator is a vital part of the ecosystem of the Louisiana wetlands.



credit: USFWS/Ginger L. Corbin

Alligators are carnivorous and it is obvious they do not like vegetables. They have strong jaws for breaking bones and cracking shells. Although an alligator's stomach can digest almost anything, they usually eat turtles, snakes, frogs and birds. An alligator usually swallows small prey whole, but for larger prey it has to tear the prey apart. It accomplishes this by performing a "death roll". An alligator grabs hold of the prey and twists its body in order to tear off pieces. An adult alligator may grow to fourteen feet and longer. Some alligators can live to be fifty years old. Alligators are hunted for their hides as well as their meat which has become a popular food.

The recipe "Gator's Gumbo" is a fun twist on a classic Louisiana dish. All of the ingredients can be found in the alligator's habitat.

Gage Seaux, Homeschool
Lafayette, LA

Resources



For more information about the
Ramsar Convention on Wetlands,
visit www.ramsar.org or
www.ramsarcommittee.us



To learn more about
Environmental Concern Inc.,
visit www.wetland.org

For more information on the Ramsar Sites featured in the 2008 Wet Your Appetite: Cuisine for Critters Recipe Contest, visit these sites:

Catahoula Lake: www.fws.gov/catahoula

Delaware Bay Estuary: www.fws.gov/northeast/de.htm

Forsythe National Wildlife Refuge: www.fws.gov/northeast/forsythe

Pelican Island National Wildlife Refuge: www.fws.gov/pelicanisland

Tijuana River National Estuarine Research Reserve: www.nerrs.noaa.gov/TijuanaRiver

Connecticut River Estuary Complex: www.audubon.org/campaign/LWCF2005-CTCONTE.html

Gators Gumbo

Entrée

- 1 cup swamp mud for roux
- 1 cup chopped water hyacinth
- 1 cup chopped frogs
- 1 cup minced shiners
- 4 – 6 quarts bayou water
- 2 bay leaves
- 4 ground sassafras leaves
- 2 nests of red wasps finely ground (discard stingers)
- 1 large red-eared slider turtle
- 2-3 assorted swamp birds
- 4 cups Spanish moss

Season birds and turtle with ground red wasp and sassafras leaves. Put all ingredients into abandoned pirogue (if fishermen are still in it they will leave soon). Let simmer while sun bathing for 6 – 8 hours. Serve over a steaming bed of Spanish moss.

Serves 8 – 10 alligators*

*actually serves only one - gators don't share!

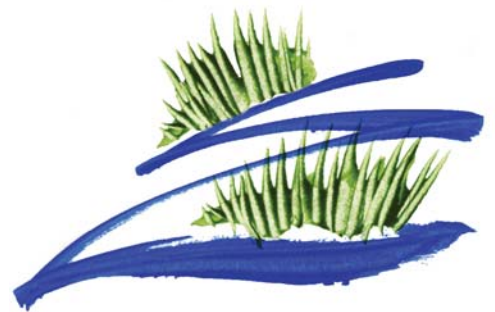
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**Environmental
Concern Inc.**

201 Boundary Lane
St. Michaels, MD 21663
410.745.9620 - www.wetland.org



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