



CRITTER CONNECTIONS

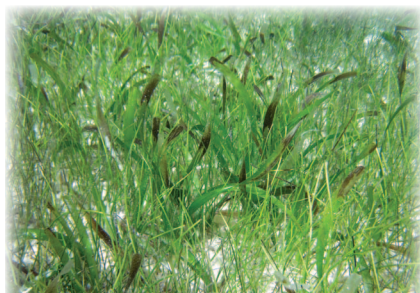


***Fantastic
Fish***





Seagrass



Turtle grass and Manatee grass

Texas is home to five native species of seagrass: Shoal grass, Star grass, Manatee grass, Turtle grass and Widgeon grass. The most common seagrass along the Texas coast is Shoal grass. It is known as a pioneer species, or a plant or animal known for its ability to grow in damaged areas. While these seagrasses grow in saltwater, Widgeon grass can be found in both freshwater and saltwater.

These plants are very important to their ecosystems. In fact, areas where they grow in groups, called seagrass beds or meadows, are considered some of the best habitats on the planet, alongside rainforests and coral reefs! How incredible!

Seagrass grows underwater in the shallow bays off the coast of Texas. Bays are a body of water along the coast that are connected to a larger body of water, like the Gulf of Mexico. Seagrasses provide food, shelter and structure for the plants and animals that share their water. Even turtles enjoy Texas' seagrass! In fact, a favorite food of the Green Sea Turtle is Turtle grass, which is

where the plant gets its name. Seagrass beds, or meadows, are sometimes called a 'nursery area' for everything from microscopic critters to sports fish like the Spotted Sea Trout and Red Drum. This means that they provide the food, shelter and space needed for young plants and animals to grow. Seagrass roots also hold down the underwater sand and mud, which reduces erosion.

Texas has over 235,000 acres of Seagrass meadows. These underwater meadows are delicate habitats that if we aren't careful can be negatively impacted. One challenge that Texas' seagrass meadows face is propeller scarring. Propeller scarring is caused by using boat motors in the shallow waters that seagrasses call home. The propeller can pull up the seagrass, leaving behind a large bare area on the bay floor. These bare areas, or scars, can take years to recover. Too much propeller scarring and the seagrass meadows become unhealthy. This means they cannot create the food, shelter and structure needed for fish and other aquatic plants and animals to grow. Conservationists are aware of this, which is why propeller scarring has been illegal in certain areas of Texas since 2013.

Despite these conservation challenges, seagrass meadows are a huge benefit to our coastal waterways. They are a nursery for aquatic critters, important to the coastal food webs, and even improve water quality! With continued conservation and care we can see these remarkable aquatic meadows continue to thrive, benefiting both humans and our coastal ecosystems alike.

Checkout the TPWD Seagrass Viewer online to find Texas' seagrass areas.



Map of Redfish Bay, seagrass in green

Photos by James St. John,
NOAA's National Ocean Service.

Cover photo by Lynn Chan

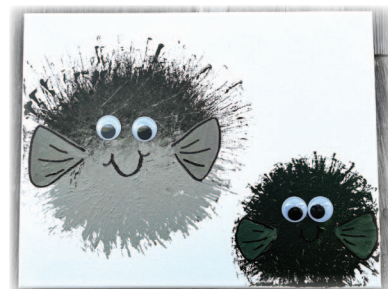
References: <https://tpwd.texas.gov/landwater/water/habitats/seagrass/>

Paint A Puffer Fish

For this craft you will need a piece of paper, craft paint, paper plate, toilet paper rolls, scissors and a black marker. Googly eyes are optional.

1. Research Texas pufferfish. Write down some facts about this unique fish.
2. Start the craft by cutting slits into one end of your toilet paper roll.
This will be your stamp and will make your puffer fish look 'spiky.'
3. Pour some paint onto a paper plate and dip your toilet paper roll into it.
4. Stamp the toilet paper roll on your piece of paper until you have a circle shape.
You can fill in the center with a paint brush if needed.
5. Let the paint dry, then draw or paint fins and a mouth. Add googly eyes or draw eyes.

You have your very own puffer fish!



Activity source: <https://www.thebestideasforkids.com/puffer-fish-craft/>
Photos by Amber Brown

Did you know...



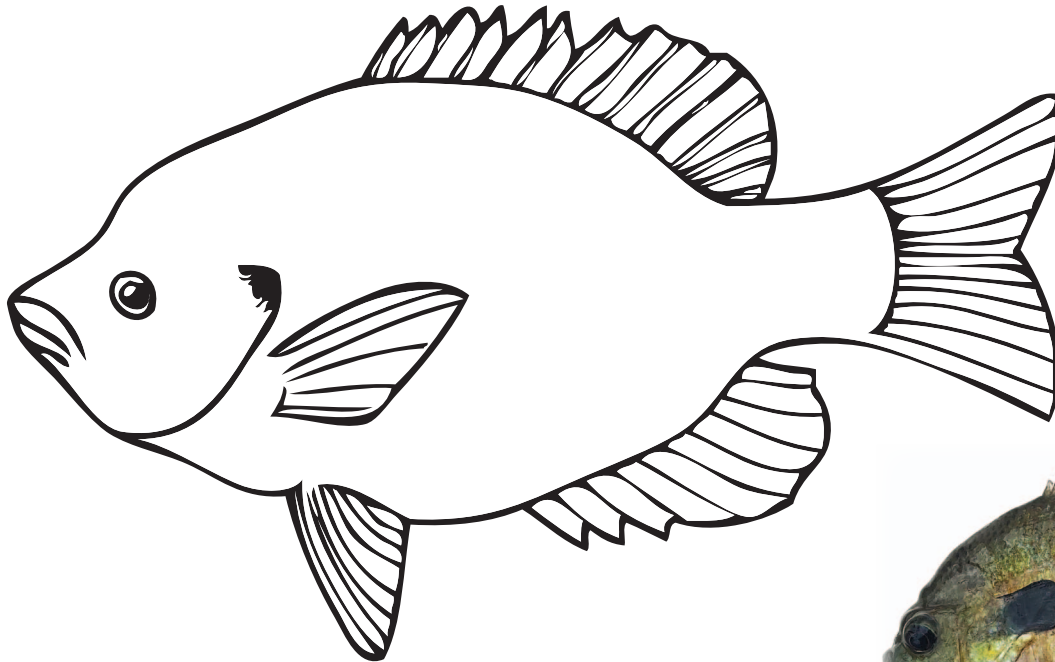
- ...that every Texan lives in a watershed?
- ...that Texas' waterways are connected?
- ...that the Rio Grande Cichlid is the only native cichlid in North America?
- ...that the Alligator Gar has been around for 100 million years?
- ...that some fish can live in freshwater and saltwater?
- ...that the Southern Flounder is the largest flatfish in Texas?
- ...that the flounder swims on its side?
- ...that Green Sea Turtles love Turtle grass?
- ...that Tarpon can grow to be over 300 pounds?
- ...that Puffer Fish have special adaptations that help them survive in their environment?



Alligator Gar research

Photo by Ryan Hagerty USFWS

Color Me



Bluegill

(*Lepomis macrochirus*)





Fantastic Fish

By Amber Brown

Just under 3% of Texas' land area is covered in surface water, but don't let that fool you. Texas' waterways are full of life - from fish, to salamanders, to turtles and sharks, and even humans. In the spring and summer, you can find Texans passing the time on our state's waterways through activities like fishing, swimming, kayaking and photography. Texas has many different waterways like streams and rivers, swamps and marshes, bayous and lakes, and even the deep open water of the Gulf of Mexico. No matter how big or small, each water body has different features and characteristics that make up an ecosystem for different plants and wildlife. The critters that live in these waters have certain adaptations that allow them to survive in their environments.

To understand Texas waterways and the critters that call them home, we must first learn about watersheds and the flow of our state's water. A watershed is an area of land where the water drains into a specific body of water. Every Texan lives in a watershed, because all land on earth is a part of a watershed. The top of every watershed is called the headwaters. The headwaters are where water from **precipitation** collects or a spring forms a stream. This source of water is called freshwater, or water that is low in salt. As this water flows downhill, it begins to form creeks, streams and small rivers. These smaller water bodies flow into larger rivers until they finally reach the coast. Only two major rivers in Texas flow directly into the Gulf of Mexico. The remaining major rivers flow into the **coastal bays and estuaries**. As these creeks, streams and rivers flow into the coastal bays and estuaries, the fresh and saltwater mix and become brackish water. Both fresh and saltwater fish can be found in brackish water. As the water continues to flow through the bays and estuaries into the Gulf of Mexico, it becomes saltwater. Saltwater is water that has a lot of salt. Eventually, the Gulf of Mexico combines with the Atlantic Ocean! Now that we know how the surface water in Texas is connected, we can dive deep into some of our **native** fish species.

A neat fish we have in Texas is the sunfish, sometimes called panfish or bream. The term sunfish is used to describe many

different species, or types, of small fish. Here in Texas, we have nine native species of sunfish. They can be found in creeks, rivers, ponds, lakes and **reservoirs**.

These small fish are a delight to **anglers** because they put up a mighty fight for their size.

Sunfish can be found throughout the state making them a common catch. They nest in shallow waters, often in groups. The male sunfish fiercely protect the nesting ground from intruders. Sunfish can be many different colors, depending on the species. For example, the Bluegill sunfish are named after the blue color found on their cheek and gill cover.

The Rio Grande Cichlid (si·kluhd) is the only cichlid fish native to North America and is **endemic** to Texas. Rio Grande Cichlids are recognized by a distinct bump on their head, as seen in the picture to the left, but only the males grow this feature. These fish can grow to over 10 inches long, have beautiful turquoise spots along their body and even have a purple ring around their eye! They are found in the warm waters of the Rio Grande River and the rivers of the Texas Hill Country.

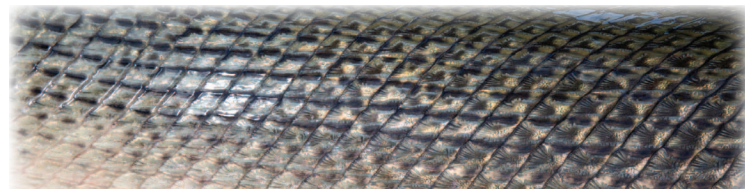
The Alligator Gar is a native Texas gar. Despite their name, Alligator Gar are not related to alligators. While these fish are found primarily in freshwater lakes and rivers, they can also live in brackish water and saltwater. This is due to their unique breathing adaptations. Gar can breathe both below water and above. They are the largest gar species alive today and can grow up to eight feet long and weigh over 300 pounds. This makes the Alligator Gar the second largest freshwater fish in North America! Alligator Gars look a lot like dinosaurs and for good reason. Scientists have found through fossil records that this fish was around over 100 million years ago! These critters have diamond shaped scales that cover their body like armor. Their heads are very bony, and they have a long snout with two rows of teeth. They even have poisonous eggs! This gar species is in decline, which means the population numbers are disappearing due to factors like habitat loss.



Sunfish nest beds



Rio Grande Cichlid



Alligator Gar Scales



A neat critter that can be found in brackish water is the Tarpon, sometimes called the Silver King. These fish can grow to be over 300 pounds and have scales that are 3 inches wide. The Texas record for the largest Tarpon caught is 229 pounds and 90 inches long! These critters are most commonly found in the Gulf of Mexico but have been seen in large South Texas rivers and small marshes. In recent years, this species has been declining due to a combination of droughts, pesticides, overfishing and damming of rivers.



Tarpon

An unexpected native Texas fish is the puffer fish, found in our state's saltwaters. The puffer fish gets its name from a unique behavior. They will quickly swallow air or water when threatened and transform into a large ball-like shape two to three times their original size to scare off predators. Once the fish no longer feels threatened it will go back to its normal size. The puffer fish is extremely poisonous to most animals and to humans. Just touching the puffer fish can cause great harm, and even death. In Texas we have two species of puffer fish, the Least Puffer and the Smooth Puffer, that can range in size from six to 36 inches long!



Least Puffer

Another unique native Texas fish we can find in our state's saltwater is the Southern Flounder. This fish is adapted to its environment by its unique eye structure, body shape and camouflage. This fish even swims on its side! Southern Flounder are the largest species of flatfish in Texas' coastal waters. They spend most of their time lying on and swimming along the bottom of the bays, gulf, some coastal rivers and even **bayous**. Because of this, both of their eyes are on one side of their body! They aren't born like this though; young flounders have eyes on each side of their body and swim like other fish. While the Southern Flounder is growing, the eye on the right side of their body will slowly move to join the eye on the left side of their body. Both eyes will be on one side by the time the fish is about half of an inch long. At this time the flounder will begin to swim sideways with their eyes facing up. While young, flounder will use the coastal seagrass meadows as shelter. Adult flounder can be found in the shallow water at night where they will bury themselves and use their camouflage to hide and wait for smaller fish.

Many of the fish listed are considered game fish. This means that these species are caught by anglers for sport. To keep these populations healthy, conservation agencies like the Texas Parks & Wildlife Department have certain regulations, or rules, in place. This can include rules like only keeping fish that are a certain

size, only keeping a limited number of fish per day, and requiring people over the age of 17 to purchase a fishing license. Money from the fishing license purchase goes towards conservation efforts here in Texas. Additionally, these rules help ensure that the fish populations remain healthy, and that Texans can continue enjoying these natural resources for years to come! Remember- if you go fishing check the Texas Parks and Wildlife Department's Outdoor Annual for rules and regulations.

Many of our fish friends are facing large **conservation** challenges. This means that they are facing factors like habitat loss, damming of rivers and water pollution that make it hard for them to survive and reproduce. Since Texas' waterways connect, we must remember that what we do in one area will impact others. This makes managing our waterways even more challenging. Scientists, biologists and conservationists are finding better ways to care for our **aquatic** ecosystems and the plants and animals that live in them, but the task isn't only up to them. We can each make a difference by picking up trash, reducing unnecessary water use, recycling and respecting our natural resources. The future of our state's waterways, and the incredible plants and animals that call them home, are in the hands of every Texan!



Southern Flounder

WORD BANK

Precipitation- water that falls in the form of rain, sleet, snow or hail

Coastal bays and estuaries- bodies of water on the coast between rivers and the Gulf of Mexico

Native- plants or animals that naturally grow in an area

Reservoirs- manmade lakes

Anglers- a person who fishes

Endemic- found in a specific place and native to the area it is found in

Bayous- slow flowing creek, or a swampy section of a river or lake

Conservation- protecting the natural resources

Aquatic- lives in, or is found in, water

References

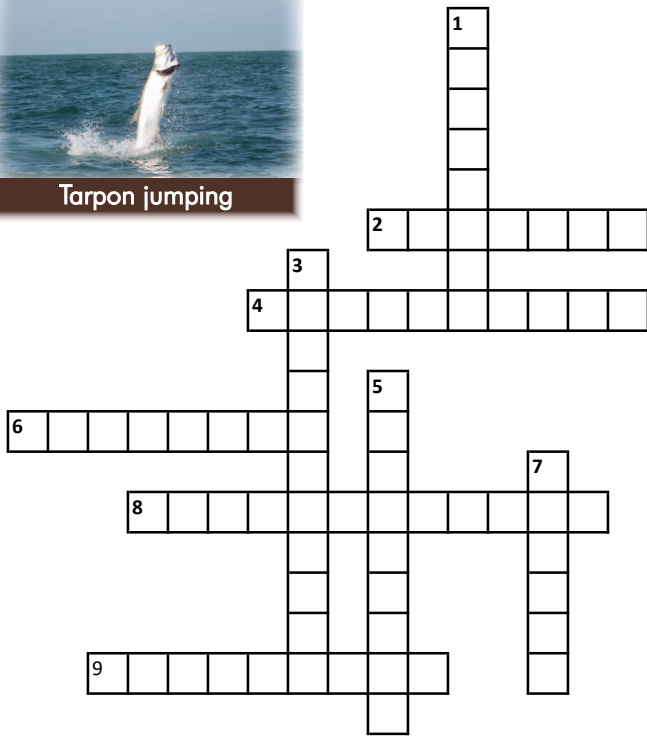
<https://www.usgs.gov/special-topics/water-science-school/science/how-wet-your-state-water-area-each-state>
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<https://tpwd.texas.gov/huntwild/wild/species/tarpon/>
<https://www.texasaltwaterfishingmagazine.com/fishing/education/fishy-facts/pufferfish>
<https://tpwd.texas.gov/huntwild/wild/species/flounder/>

Photo Sources: Living Waters Fly Fishing, Kristen Bobo, Ty Higginbotham, Ryan Hagerty, Thomas Hawk, NOAA photo library, Luke Smith

Fishy Crossword



Tarpon jumping



ACROSS

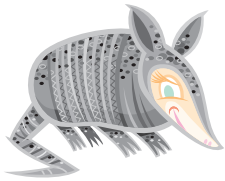
2. native to a specific area
4. a fish that will puff up when threatened (two words)
6. a type of native sunfish that has blue on its cheek and gill covers
8. the oldest gar species in North America (two words)
9. an area of land where water drains into a specific area

DOWN

1. this fish swims on its side
3. a Green Sea Turtle's favorite seagrass (two words)
5. water with the most salt
7. this fish is also called the Silver King

Activity source: <https://puzzlemaker.discoveryeducation.com/>
Photo source: Florida Fish & Wildlife

ANSWERS: 1. Flounder, 2. Endemic, 3. Turtle grass, 4. Puffer fish, 5. Saltwater, 6. Bluegill, 7. Tarpon, 8. Alligator gar, 9. Watershed.



Nancy's Corner



Texas waterways are very important to humans, plants and wildlife alike. Our rivers, lakes and coastal bays are very delicate ecosystems. Now that we know all of Texas' waterways are connected, we can begin to learn how we can help.



To start, you can look up your local watershed using <https://mywaterway.epa.gov/>. This online tool will tell you what watershed you are in, how it's doing, what critters live there and more! Since Texas' waterways are connected, we know that what we do in our own watershed can affect others. We can help our watersheds by picking up trash, recycling, taking shorter showers, turning off the water when brushing our teeth and reducing how often we water our lawns.

Another fun way to help our Texas waterways is to join a beach or river cleanup! Beach and river clean ups are when a group of people choose a day to pick up the trash from our waterways together. Check with your local conservation organization or river authority to see when the next cleanup will be. You don't have to wait until the next cleanup to get started though! The next time you visit Texas waterways to kayak, fish or swim- bring a bag with you to pick up trash that you see. This can be anything like cans, old fishing lines and plastic bags. Be sure to wear gloves and recycle what you find!



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