Q/A's from the July 2025 #TMNTuesday on Coastal Fisheries and the Saltwater Fishes of the Texas Gulf Coast

Q: Are anglers required to respond to surveys about catches or is it voluntary?

A: Our creel surveys are completely voluntary for anglers to participate in. We've noticed though that a large majority of anglers are eager to answer our questions, and tell us about their fishing experiences on the water!

Q: i thought gill nets are illegal, as they catch too many young fish?

A: Gill nets are illegal for the public to set and collect fish with, as they are very good at catching large amounts of fish without discrimination for species! Gill nets can be set with the proper permitting, usually by universities and government agencies for research purposes. TPWD Coastal Fisheries program regularly applies for and receives the permits from NOAA to set and retrieve gill nets.

Q: What do you do with the fish that you catch?

A: Most of the fish we catch are identified in the field, measured in millimeters, and released alive back into the water it was caught. Occasionally some fish may be retained, either for otolith collection (Fish ear bones, used to help age the fish), stomach content analysis, or because it is impossible to identify the species without returning it to our lab.

Q: Are Spotted Eagle Rays common in the Gulf?

A: It depends on where you are in the Gulf! As far as I'm aware, spotted eagle rays are much more common off the Florida Gulf Coast than our Texas Gulf Coast. Our team rarely encounters them, but they aren't rare and it is always delightful to see them!

Q: What does TPW do to : 1) restore fish to historic ranges where habitable? 2) Expand from historic ranges in response to climate change, e.g. snook?

A: TPWD Coastal Fisheries' focus is on the maintenance of current fish populations rather than restoration and recovery. There are cases during cold stuns for example where the focus in the immediate area will be recovery of the fish population to post-freeze numbers, but restoration of fishes to historic ranges is beyond our scope. The data we collect has helped us identify how historic ranges of fishes are changing (including snook!), most likely because of climate change, but our maintenance of the fish populations is through the establishment and upkeep of fishing regulations for anglers.

Q: What is the difference between an oyster reef and an oyster bed?

Oyster reefs and oyster beds refer to the same thing, which is a group of live oysters living and forming a structure in an area. I don't recall if I used both terms interchangeable, but if I did, apologies!

Q: Is all your work catch and release?

Most of it is! Occasionally, fish and other invertebrates are brought back to the lab, either for further identification or for collection of samples like fish otoliths (ear bones) and stomach contents.

Q: Do any of your surveys involve endangered freshwater mussel species that are members of the bay watersheds? Examples: Texas fatmucket, Texas pimpleback, etc.

A: The management side of Coastal Fisheries doesn't work with any freshwater mussel species. There are other subdivisions within our division that occasionally work with freshwater mussels, such as a recent mark/recapture study on federally endangered freshwater mussels in the Sabine River in October 2024.

Q: Since many sharks and other marine organisms cannot breathe if not moving, what percentage of the long-line caught animals survive and can be released and how many are already dead when harvested? Do you catch sea turtles and marine mammals?

A: While it is true that many sharks breathe through ram ventilation (Needing to swim to breathe), the design of the longline allows for hooked animals to continue moving in the water column until the gear is retrieved. Practically everything caught on our longlines is retrieved alive and released alive. There are a few instances where an animal hooked on our longline is dead on retrieval, and this is typically due to depredation on the hooks. To the best of my knowledge, we have not had any instances of sea turtles or marine mammals caught on our longlines.

Q: Are Coastal hatcheries mainly for release into the fish species' natural habitats or is it for farmed fish to sell into the marketplace?

A: Our TPWD Hatcheries are for stocking our bays and estuaries with spotted seatrout, red drum, and southern flounder. Research is also conducted at these hatcheries to determine the most efficient ways to raise these fishes and ensure survivability once they are released. None of these fish are sold to the market.

Q: What happens to poached fish that are confiscated? Clearly they are dead but are they thrown away once you've collected data, or is there a more effective use for them afterward?

We've been working with the HARTE institute at Texas A&M Corpus Christi to collect data on the poached fish we receive from the Coast Guard. Generally, we will identify species, get several measurements of length, a weight, and determine the sex of the animal. We have also recently began collecting otoliths (fish ear bones) to help age the fish brought to us. This data is sent to the HARTE institute for them to analyze. As for the fish, it is discarded as we cannot verify if the fish are still safe to consume. Most of the time, when we get the fish, it's very clear that they are no longer safe to eat! I have seen reports though that extra fish will sometimes get donated to Sea Turtle, Inc (A sea turtle rehab facility on South Padre Island) and our local zoo, the Gladys Porter Zoo.

Q: What do you do about law breakers discovered during dock surveys?

A: As employees of Coastal Fisheries, we do not have any authority to hand out tickets or issue citations for any law breakers we encounter. Generally, we will take the opportunity to advise and teach fishermen about the laws that were broken, as the infractions are typically minor anyway, and sometimes a case of misunderstanding. In the case of someone committing egregious law breaking, we will contact the local game wardens to handle the situation.

Q: What are some Fish ID books for Texas fish?

A: My favorite one is "Fishes of the Gulf of Mexico: Texas, Louisiana, and Adjacent Waters" by H. Dickson Hoese and Richard H. Moore. When it comes to sharks, rays, and skates, my go-to is "Sharks, Skates, and Rays of the Gulf of Mexico: A Field Guide" by Glenn R. Parsons. For freshwater fish, I love "Peterson Field Guide to Freshwater Fishes" by Lawrence M. Page and Brooks M. Burr. Some other good books I have seen include Saltwater Sport Fish of the Gulf Field Guide (Fish Identification Guides) by Dave Bosanko and "A Field Guide to Coastal Fishes: From Maine to Texas" by Val Kells and Kent Carpenter.

Q: How well does iNaturalist work to id fish?

A: The iNaturalist AI tool works very well in my experience when the fish is pictured from the side. Sometimes people on the website (including myself!) upload photos of fish swimming from above, and the AI typically does a poor job identifying these. There are also some fish where the difference between species may not be evident from a photograph, so the AI will suggest, for example, a species within the same genus but the wrong species. The fish community on iNaturalist though seems to do a great job correcting these errors when they're spotted!

Q: I don't know if cross bred fish are common in coastal fish or is only a product of intervention, e.g., smallmouth and Guadeloupe bass. What does this do to ray counts, shift with % genetic contributions?

A: I don't know if it's common either, but it certainly happens without intervention. For example, the inland silverside and the tidewater silverside hybridize in our area, and these fish are typically identified by the shape of the swim bladder, which varies in appearance in hybrids, making identification extremely hard without DNA analysis. Other hybrids do have differing ray counts from their non-hybrid counterparts, such as sunfish (*Lepomis sp.*) hybrids.

Q: Is the ability to use their musculature to beat their swim bladders what qualifies them as "drums"?

A: It's certainly one of the characteristics that unites them as a family, but fish systematics are messy and there are probably other unifying characteristics as well. I will note that while drumming is very common in this family, not all of the fish "drum" the same way, and some members do not do this at all.

Q: Any issues w/non-native exotics?

A: My team in Brownsville hasn't personally come across many exotics. Very recently we had a white-spotted jellyfish in a sample (Native to Australia), and occasionally when the salinity drops we'll catch blue tilapia (An established freshwater exotic in our area). We have some species off our coast considered invasive, such as lionfish and giant tiger prawns, but thankfully we don't encounter them often. Our artificial reef team will occasionally go to our reefs and conduct surveys on lionfish and help organize lionfish hunts, as these fish are huge detriment to the reefs.

Q: Sorry- the second dorsal fin is rounded on the bull shark?

A: They are not. I may have slipped up in either my wording, or in my hastiness included the wrong photo in reference to the bull shark. Sorry for the confusion!

Q: Isn't the gulf toadfish super toxic?

A: Most toadfish have toxins that can cause you pain if you get hit by one of the spines, but gulf toadfish lack these toxins. They are still quite painful if you get stung by one though (Believe me, I know!)

Q: How large do pipefish become?

A: The largest pipefish in the world is the brush-tailed pipefish, native to Australia, which can grow up to 2ft long! Our biggest pipefish is the chain pipefish, which can get to a little over 1ft in length.