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## Let's Talk Tuna!

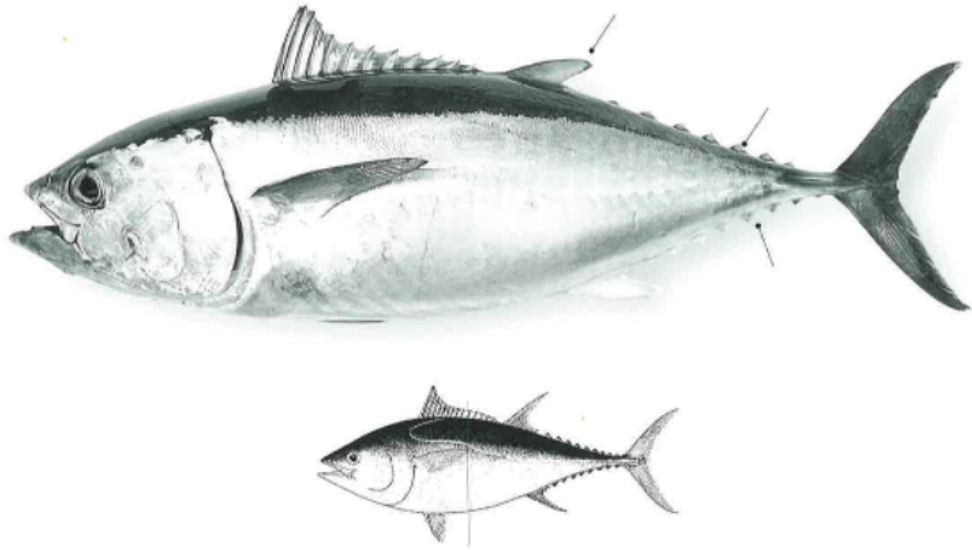
Tuna are enigmatic and delicious predators that inhabit the pelagic waters of the Gulf of Mexico. While albacore tuna, bigeye tuna, blackfin tuna, skipjack tuna, bonito, and little tunny call the Gulf of Mexico home, yellowfin tuna and bluefin tuna get the most attention. In this issue of the Gulf Coast Fisherman, we'll do a deep dive into these two Gulf of Mexico icons.

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## Bluefin Tuna

Built for speed, bluefin tuna are top predators with torpedo-shaped bodies, retractable fins, and lunate (crescent-shaped) tails. They can be identified by their relatively short pectoral fins, a second dorsal fin that is longer than the first, and yellow finlets with narrow black margins. Despite their giant size (up to 13 feet long and 2,000 pounds), bluefin tuna can reach speeds over 40 mph with small dorsal and ventral finlets minimizing turbulence as these fishes slice through the open water. Fascinatingly, bluefin tuna have regional endothermy, meaning they can regulate their internal body temperature, unlike most other fishes. This physiological adaptation helps these highly migratory pelagic fishes

voyage thousands of miles across entire open oceans. There are three species of bluefin tuna: Atlantic, Pacific, and Southern. Among the Atlantic bluefin tuna, there are two independently managed stocks: the eastern, which spawns in the Mediterranean Sea, and the western, which spawns in the Gulf of Mexico. But don't be fooled – data indicate that mixing between the two Atlantic stocks does occur!



*Bluefin tuna photo and illustration showing identifiable characteristics. Image from Rhode Island Sea Grant and NOAA Fisheries.*

The western Atlantic bluefin tuna (hereafter, bluefin tuna) are slow growing, do not reach maturity until they are [8 years old](#), and can live for over [30 years](#). From mid-April to June in the Gulf of Mexico, females release up to 10 million eggs that become fertilized in the water column and hatch about 2 days later. Therefore, the Gulf of Mexico is a critical spawning ground for bluefin tuna, and targeted fishing of this species is not allowed in this region. However, yellowfin tuna are fished in the Gulf of Mexico, and this fishery is economically valuable to southeastern coastal communities.

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## Yellowfin Tuna

Yellowfin tuna share similar body shape characteristics with bluefin tuna, but are considerably smaller, reaching only about 6 feet in length and up to 400 pounds. As opposed to bluefin tuna, yellowfin tuna have relatively long pectoral

fins, bright yellow second dorsal and anal fins, and "lemon" yellow finlets with narrow black margins. Yellowfin tuna are highly migratory fish, and juveniles travel in schools with skipjack and bigeye tuna. As fairly fast growers, these fish begin reproducing around [2 or 3 years](#) of age and have a lifespan of up to [18 years](#). Spawning in the Gulf of Mexico occurs from May to August, with females producing an average of 1 to 4 million eggs every 3 days throughout the spawning season.



*Yellowfin tuna photo and illustration showing identifiable characteristics. Image from Rhode Island Sea Grant and NOAA Fisheries.*

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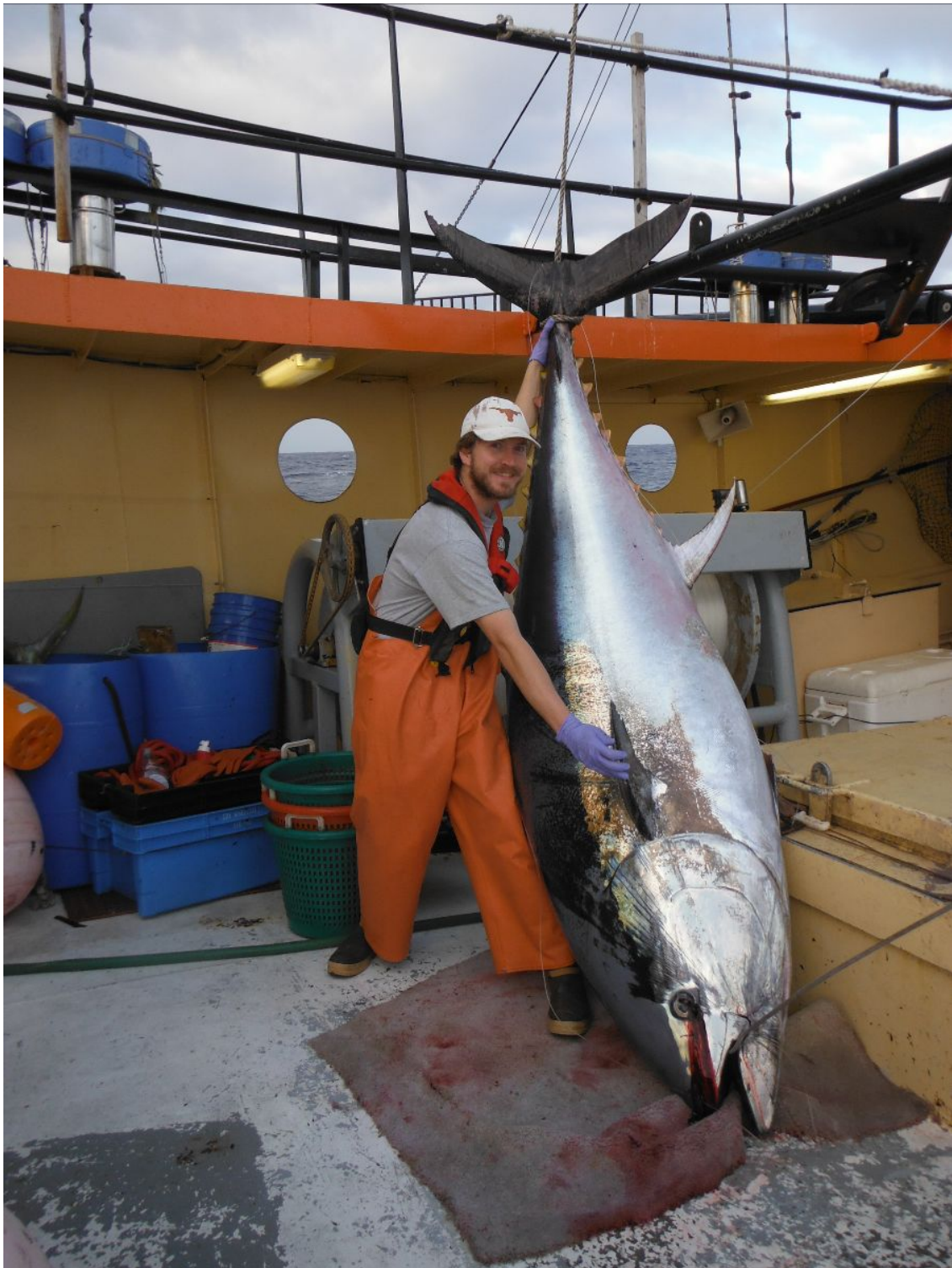
## Atlantic Tuna Management

Unfortunately, Atlantic bluefin tuna endured intense fishing pressure in the 1960s, which caused severe depletion of the stock. Thanks to previous and ongoing recovery efforts, these popular fish are not currently undergoing overfishing, but notably, their population status (whether overfished or not) remains unknown. The yellowfin tuna population is neither subject to overfishing nor overfished. (Note that “overfishing” means the rate of harvest is too high, whereas “overfished” means there are too few fish in the stock.) As a result of successful management practices, U.S. wild-caught [bluefin](#) and [yellowfin](#) tuna are now considered smart seafood choices!

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# Atlantic Tuna Fishing

Bluefin tuna and yellowfin tuna are harvested recreationally and commercially in the U.S., as they are strong fighters and are a staple sushi ingredient! Although there is an overarching U.S. bluefin tuna quota for recreational fishing, it is further divided into subquotas by five size classes (School, Large school, Small medium, Large medium, and Giant). The well known “Trophy” class consists of the Large medium and Giant bluefins but is managed as one class. Notably, if you fish recreationally and catch one of these elusive tuna, it must be larger than 27 inches to be retained and may not be sold! Recreational fishing for yellowfin tuna is also popular (but requires a permit), with 12 million pounds landed by recreational anglers in 2021 according to NOAA Fisheries!



*Massive bluefin tuna. Image from NOAA Fisheries Southeast Fisheries Science Center.*

Commercial fishing for bluefin tuna piqued the interest of many Americans in 2012, when the famous show *Wicked Tuna* first aired on National Geographic Channel. This reality television series gives viewers a glimpse into the way of life for Massachusetts captains as they rod and reel fish in the blue waters of the Northwest Atlantic to capture “monstah” bluefin tuna. Similarly, pelagic longlining is a way of life for many southeastern U.S. fishermen. Pelagic

longliners embark on 2-week journeys, during which they deploy a mainline (the average U.S. longline set is 28 miles) with hundreds of hooks positioned in the water column to catch prized fishes like swordfish and yellowfin tuna. When tuna fishing, the gear is set at dawn, remains in the water for several hours, and is hauled near dusk. NOAA Fisheries calculated that commercial landings of yellowfin tuna during 2021 were valued at almost \$5.5 million.

Although Gulf of Mexico pelagic longliners are primarily targeting swordfish and yellowfin tuna, bluefin tuna are caught as bycatch (the incidental capture of non-targeted species). To reduce bycatch in this fishery, NOAA Fisheries requires the use of weak hooks, which allow large animals (like bluefin tuna) to safely escape from the hooks. However, bluefin tuna are still occasionally caught and landed on pelagic longline gear. When this happens, the Individual Bluefin Quota (IBQ) goes into effect. This program, supported by the pelagic longliners, began in 2015 with the implementation of Amendment 7. While limiting the number of incidental landings and dead discards, it also provides strong incentives for the longliners to avoid this protected species of tuna. Furthermore, the IBQ program optimizes fishing opportunities and maintains profitability for the longliners.

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## Bluefin Tuna Restoration Project

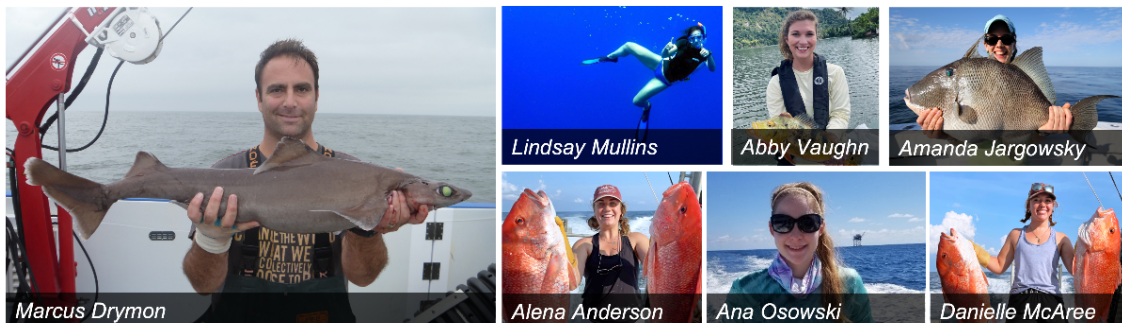
Bycatch in the pelagic longline fishery remains an international concern, and reducing bycatch in the Gulf of Mexico is one method for restoring lost biomass (the total weight of a group or stock of living organisms) from the 2010 *Deepwater Horizon* Oil Spill. To this day, bluefin tuna are still recovering from this environmental tragedy, which increases their vulnerability to overfishing. Therefore, the NOAA Fisheries Restoration Center initiated the Bluefin Tuna Restoration Project.



# BLUEFIN TUNA RESTORATION PROJECT

This project originates from previous pop-up satellite archival tag (PSAT) data indicating that bluefin tuna inhabit a narrow depth range (50 - 110 meters), which overlaps with pelagic longline fishing gear, while yellowfin tuna use broader depths (30 - 200 meters). The project will test if bluefin tuna bycatch and mortality can be reduced in the Gulf of Mexico pelagic longline fishery by optimizing fishing depth. Specifically, 16 pelagic longline captains will be recruited over the 4-year project to complete alternating sets, consisting of one typical set and one deep set. Ideally, the deep sets should avoid bluefin tuna. Additionally, 40 PSATs will be deployed on yellowfin and bluefin tuna to further our understanding of the migration and behavioral patterns of these valuable fishes. If the data support effective restoration efforts of bluefin tuna, pelagic longline captains may voluntarily adopt this fishing approach given the economic benefits that are associated with reducing bluefin tuna bycatch.

We are proud to be included in this project as an implementation partner, and we look forward to sharing more information about the project's progress and results in future Gulf Coast Fisherman newsletters!



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