Ocean Oddities

By Brian Neilan, Senior Fisheries Biologist

Common recreational fish species caught along the New Jersey coast include striped bass, summer flounder, black sea bass and bluefish. If you've been out on the water enough times, whether scuba diving on a reef or when bottom fishing, you may have hauled in a peculiar fish and thought, "What the heck is that?"

Here we explore a diversity of interesting and sometimes overlooked fishes that swim, slither and crawl around our ocean. Each of these featured creatures developed their appearances for specific evolutionary reasons including protection from predators or to make them more effective predators themselves. Some of these make good to excellent table fare like the striped sea robin, gray triggerfish and conger eel.

Take some time to appreciate these often-encountered, oddball ocean dwellers for the role they play in our marine ecosystem and the potential spot on your dinner plate that some can fill.

Ocean pout, eel pout, mutton fish

Macrozoarces americanus
Maximum Size: ~3 feet long and up to 12 pounds in weight


Ocean pout (NOAA)

The ocean pout is a benthic (bottom dwelling) fish in our "slithering" category. While preferring to reside in hard structure such as natural and artificial reefs, the ocean pout can also be found on sand ridges and lumps where it uses its strong paddle-like tail to bury itself.

Resembling an eel, but not related to true eels, the ocean pout has an underslung mouth with thick, fleshy lips that it uses to suck up prey from the ocean floor. Preferred prey reflects its bottom-dwelling lifestyle: green crabs, Jonah crabs, sea urchins, and scallops make up a significant portion of the ocean pout's diet. One favorite, the sand dollar, is responsible for the bright green teeth revealed when removing the hook from a freshly caught ocean pout.

Given their habits and prey overlap with popular recreational species such as summer flounder and tautog, it is not uncommon to catch an ocean pout. **The National Marine Fisheries Services does not allow the harvest of ocean pout. If caught, they must immediately be returned to the water.**

Conger eel, American conger, dog eel

Conger oceanicus
Maximum Size: 6 feet long and up to 80+ pounds


Conger eel (NOAA)

Another benthic fish in our "slithering" category is the conger eel. Resembling an American eel, this species prefers hard structure and makes its home in the nooks and crannies of reefs, rockpiles and jetties. A voracious nocturnal predator, the conger eel will eat just about any prey that can fit in its mouth — and some that don't. Adults feed primarily on other fishes and squid, but shrimp, crabs and carrion will be readily devoured if available.

Due to the conger eel's diet and preferred habitat, they are often encountered as bycatch when targeting other structure-associated species such as summer flounder, tautog, black sea bass and cod. Unlike the ocean pout, conger eels may be harvested with no limitations. This presents anglers with an opportunity to fill their cooler with a commonly disregarded fish that makes good table fare. The flesh is white and firm and can be prepared in a variety of ways including fried, grilled, broiled or in a fish stew. If you are brave enough to add this slimy creature to your menu, take note to avoid using the tail end as it can be extremely boney.

Monkfish, goosefish, American anglerfish

Lophius americanus
Maximum size: 4+ feet long and 50+ pounds


Monkfish (NOAA)

The monkfish is certainly among the oddest fish to swim the New Jersey coast and possibly the entire Atlantic Ocean. Sometimes described as a swimming stomach with a tail, the head on this fish makes up nearly half its total length. This species can expand its mouth wide enough to devour fish nearly the size of the monkfish itself. Combined with its mottled brown coloration with fleshy lobes and frills covering its body, the monkfish epitomizes that concept of an ocean oddity.

This benthic ambush predator prefers the fine-grained sediments of the continental shelf where it buries into the sand for concealment, revealing only a modified spine on its head used like a fishing lure to attract prey. Any curious fish that inspects the lure is devoured whole in the blink of an eye by the tooth-filled giant mouth.

Unlike the conger eel, it is no secret that monkfish tastes better than they look. Often referred to as the poor man's lobster, a keeper monkfish is frequently the highlight of an angler's day because of the delicious meal that awaits.

Striped sea robin

Prionotus evolans
Maximum Size: 18 inches long and 2+ pounds


Striped sea robin (NOAA)

An angler experienced in bottom fishing with chunk or strip bait has most likely encountered the striped sea robin as bycatch when fishing for fluke or black sea bass. Another benthic ambush predator, these notorious bait-stealers have a hard, boney head covered in spines that makes unhooking them a prickly affair. This fish gets the "robin" name from its huge spread out pectoral fins that look like a pair of wings as it walks along the seafloor. That's correct, sea robins "walk" along the seafloor using modified pelvic fins like fingers to feel around in the sediment for prey. Preferred prey includes small crabs, shrimps, mollusks and polychaete worms.

Adding to its unusual appearance, the striped sea robin has the ability to grunt, voicing its displeasure at being caught. The sound is generated when the fish vibrates muscles against its drum-like, air-filled swim bladder. Although considered a nuisance, those in the know are aware that striped sea robins make very good table fare. With a sharp knife and a pair of gloves to protect against the spines, a brave angler can be rewarded with firm white meat that takes well to most styles of cooking.

Northern stargazer

Astroscopus guttatus
Maximum Size: 24+ inches long and 13+ pounds


Northern stargazer (NOAA)

Another common bait-stealer, and benthic ambush predator, encountered when bottom fishing for species like black sea bass, scup and summer flounder is the northern stargazer. With a closely set pair of protruding bug-eyes placed atop its large head, and frilly lips resembling an out-of-date facial hair style, the northern stargazer certainly earns the label of an *ocean oddity*.

This stout bottom-dweller relies on the element of surprise when catching its prey. Using its short, strong tail, the northern stargazer is typically found buried in the sand up to its eyes waiting for small crabs, shrimp, squid and fish that it snaps up in a flash.

This odd fish also has a shocking secret: between its eyes are a set of modified muscles that can generate an electric shock, surprising an unwary angler attempting to remove a hook. While not strong enough to harm a person, it's certainly not a reaction one expects to experience while unhooking a fish.

Gray triggerfish

Balistes capriscus
Maximum Size: 28+ inches long and 13 pounds


Gray triggerfish (NMFS)

Not all ugly and oddball fish live a benthic lifestyle, as the gray triggerfish proves. This late-summer visitor to the Jersey shore is commonplace in south Atlantic states, but only an occasional bycatch in our waters.

Diamond shaped in profile, the gray triggerfish is laterally compressed with eyes set on either side of its flat head. Like many species mentioned previously, the gray triggerfish's oddball looks are physical adaptations that match its feeding habits and habitat preferences. At the tip of its snout is a pair of thick, fleshy lips and large, buck teeth used to grab and crush a variety of hard-bodied prey such as crabs, shrimp, urchins, sand dollars and mussels.

Atop its head are two specialized dorsal spines that give the gray triggerfish its name. These two locking spines are used for anchoring the triggerfish among rock and reef crevices and as defense against predators. Anglers should be aware of these sharp spines when handling these fish. The trick to unlocking the spines is to press down on the smaller second spine which serves as the "trigger" to unlock the larger front spine.

Triggerfish are often caught as bycatch when fishing for tautog, black sea bass and summer flounder and provide a delicious addition to the angler's haul for the day. Their sandpaper-like skin makes them a challenge to fillet. Use gloves and continually sharpen your knife for a safe and effective process.

These species represent only a portion of the oddball, ugly and downright bizarre fishes that an angler may encounter when targeting popular species in New Jersey. Though it may be shocking to pull one of these over the rail or onto the beach, look beyond their appearance and you may come to appreciate these unique creatures.

At a time when many stocks of popular sportfish are assessed as overfished or depleted, spreading the harvest around to less commonly targeted species can play a part to help more popular species recover. So, the next time you haul in a fish that makes you think, "What the heck is that?" take a picture and do some research. You might learn something new about a cool — and possibly tasty — fish!

NEW JERSEY DIVISION OF
Fish and Wildlife

COVID-19 Effects on Marine Resource Surveys

By Linda Barry, Senior Fisheries Biologist

In any given year, New Jersey Division of Fish and Wildlife's Marine Fisheries Administration biologists and scientists are hard at work crunching numbers to assess the stock of the valuable fishery species managed under the auspices of the Atlantic States Marine Fisheries Commission or one of the fishery management councils created by the passage of the Magnuson-Stevens Fishery Conservation and Management Act in 1976. Every year since then, Marine Fisheries Administration staff ventured onto the state's estuarine and ocean waters to conduct the many research surveys that are vital components in these assessments. Except for 2020.

In mid-March of 2020, due to the spiraling spread of COVID-19 within our state and beyond, the State of New Jersey mandated a lock-down that included sending most of the state work force home to work remotely. Field operations ground to a halt as health experts attempted to find ways to curtail the disease spread.

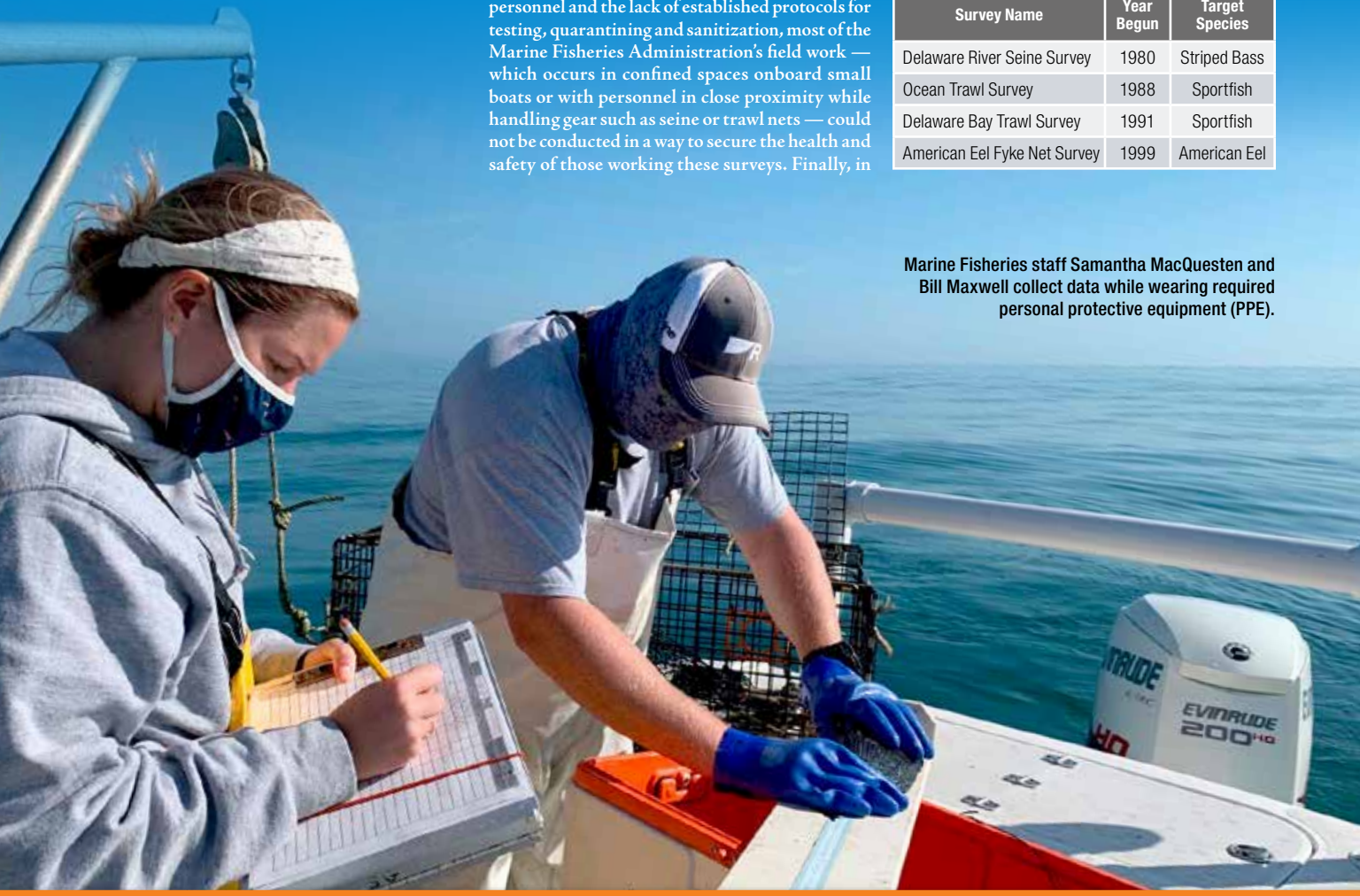
Pre-PPE Protocols

Without adequate and feasible guidelines in the use of personal protective equipment (such as masks and gloves), the inability to maintain the minimum of 6-foot social distancing between field personnel and the lack of established protocols for testing, quarantining and sanitization, most of the Marine Fisheries Administration's field work — which occurs in confined spaces onboard small boats or with personnel in close proximity while handling gear such as seine or trawl nets — could not be conducted in a way to secure the health and safety of those working these surveys. Finally, in July of 2020, protocols to minimize the risk of disease spread were approved, thus allowing a few of New Jersey's Division of Fish and Wildlife field surveys to resume.

Missed Opportunities

The early summer release of COVID-19 safety protocols came too late to allow adequate sampling completion for many of the Marine Fisheries Administration surveys. These include, but are not limited to, such long-running surveys as listed in the table below:

Survey Name	Year Begun	Target Species
Delaware River Seine Survey	1980	Striped Bass
Ocean Trawl Survey	1988	Sportfish
Delaware Bay Trawl Survey	1991	Sportfish
American Eel Fyke Net Survey	1999	American Eel



Marine Fisheries staff Samantha MacQuesten and Bill Maxwell collect data while wearing required personal protective equipment (PPE).

Biological samples for data such as length, weight, age and sex normally obtained from these surveys remain uncollected. Through the last two to three decades, these surveys have contributed valuable abundance, biomass, size and life history data to stock assessments for various species such as striped bass, summer flounder, black sea bass, scup, bluefish, winter flounder, American shad, river herring (alewife and blueback herring), weakfish, American eel, spiny dogfish, tautog and horseshoe crab.

Fisheries biologist Brian Neilan works safely in the lab.

Assessment Models Accommodate Data Gaps

Fortunately, stock assessment scientists have methods to handle short-term data gaps when inputting data into assessment models. For example, a coast-wide striped bass stock assessment from several years ago approached the absence of young-of-year data from some states by allowing the model to overlook the missing year. This approach is possible for statistical catch-at-age models such as the one used for striped bass. For species using a trend analysis model, assessment scientists examine a range of possible results using estimated or skipped values in sensitivity runs to evaluate the most reasonable method to handle data gaps.

Some of New Jersey Division of Fish and Wildlife's Marine Fisheries Administration sampling surveys resumed by mid-summer of 2020. Adaptive adherence to COVID-19 protocols succeeded with the use of protective equipment and social distancing for surveys conducted on land and for those utilizing larger vessels with small crews.

Telephone and Access Point Intercept Surveys

These surveys include two data sources for NOAA's Marine Recreational Information Program (MRIP) for New Jersey: the For-Hire Telephone Survey which was conducted as originally scheduled but on a remote, work-from-home basis and the Access Point Angler Intercept Survey (APAIS) which resumed in July, albeit on a somewhat curtailed basis. At-sea interviews could not be conducted due to tight social distancing conditions. Angler intercepts decreased due to a low rate of encountering anglers wearing masks and social distancing.

These two surveys gather critical information such as the effort expended by recreational fishermen, their target species, what was caught, kept and released and the lengths of harvested fish. Marine Recreational Information Program data are crucial for accurately assessing numerous fish stocks since many fisheries in New Jersey are dominated by the recreational sector.

Data Collections Continue

The Striped Bass Bonus Program, created in 1990, continued enrolling participants over the summer via an email-only system to collect angler catch data. A ventless trap survey, initiated in 2016 with sampling sites on and around three of New Jersey's artificial reefs, resumed sampling in July after having to cancel its planned spring season. A project tracking the movements of Atlantic sturgeon and other species, like coastal sharks, in Delaware Bay, resumed downloading data in August from receivers deployed prior to the pandemic restrictions.

These surveys provide the biological and environmental data needed to accurately monitor and assess the health of important fisheries stocks as well as the forage species on which those stocks depend.

For 2021 surveys, staff within New Jersey Division of Fish and Wildlife's Marine Fisheries Administration are proceeding with conducting monitoring and research work as COVID-19 safety protocols allow, providing the valuable data needed to rebuild and maintain sustainable marine resources in New Jersey for generations to come.