

## Stressing the Balance

“Good morning class. Today we will be discussing the legendary collapse of the North Atlantic Cod population,” my history teacher said in his practiced monotone voice. “Without government intervention, it is likely the North Atlantic cod species would no longer exist.” Mr. Allison then proceeded to give us the traditional speech of how this may not affect us directly, but it’s important. “Why, you ask. Because history repeats itself.” I flipped pages in the book until I found the right one, the chapter was entitled “The one that *almost* got away.”

*I had an “uncle Jack” as I called him, he wasn’t my actual uncle, but being a close family friend he helped fill a slight void in my life. More than that, he taught me how to fish. Jack, a rustic older man who always had bent glasses, a thick mustache, and a smoldering cigar in hand, always kept to himself. This wasn’t a problem though because fishing was usually more of a quiet activity anyway. When he did finally feel comfortable around me, I learned that he was a Vietnam veteran. It was clear that he had seen more than his fair share of sadness and war. For him, the sport of fishing became the quiet escape he needed when he returned from overseas.*

*We had worked out a deal. Every week, I would mow his lawn (since his age had begun to catch up with him) and in return he would take me fishing. Every week, he came through. I would help hitch the boat up, put the gear in the back, and we would drive to one of the lakes of Northeastern Ohio. On the way, he told me about the forms of line, types of tackle, and lures, both new and old. I did my best to absorb the information at the time, but there was always more to learn.*

Today, fishermen are no longer using a basic form of thread or string to catch fish. More complex fishing lines such as monofilaments, fluorocarbons, and high strength braided fibers are being utilized. Monofilaments are a single strand of specialized plastic. It is made by melting and mixing polymers and then extruding the mixture through tiny holes, forming strands of line, which is then spun into spools of various thicknesses. This line is slightly stretchable, so it is forgiving towards the angler; binds well on itself, which is useful for knot tying; and can be relatively clear, but not fully invisible to fish. Monofilament is by far the most common form of fishing line, mostly because it is inexpensive to produce and easy to use.

Fluorocarbon line is a specialized form of monofilament. The elements fluorine and carbon are used in combination with the mixture used to produce monofilament to create fluorocarbon. This combination produces a product that is virtually invisible beneath water. Sharing many of the properties of monofilament, fluorocarbon is less visible, but more brittle than its counterpart. For this reason, many anglers choose to use fluorocarbon as a leader attached to the end of their monofilament line to achieve the benefits of both materials. This way, the small section of fluorocarbon line near the fish is invisible while the rest of the line is more malleable as well as less expensive monofilament.

The last form of line used is made of high-strength braided fiber. These braided fibers utilize ultra-high-molecular-weight polyethylene components. More commonly known as kevlar, dyneema, and spectra braids, these have almost zero stretch and often have a higher strength to weight ratio than steel. This means that when used in fishing line, a very high tensile strength can be achieved even with an incredibly small diameter. In other words, a line similar to the thickness of sewing string may take up to 50 pounds of force to break. The benefits of this include greater line capacity as well as less line breakage. Because of its impressive strength, this material is also used in space suits, climbing equipment, parachutes, and bulletproof vests. The only downside to this material as fishing line is the lack of invisibility.

*It seemed each year Jack and I went, we caught less and less fish. As we were out on Berlin Lake (one of the many in Northeast Ohio), Jack would remind me of how things had changed. "When I was your age, my dad and I used to come up here. I remember I had to take a break from fishing because my damn arms got so tired from reelin' em' in. Now-a-days we're lucky if we catch a few."*

*I tried to look past the obvious nostalgia, but he was right. I wondered how we could be catching far fewer fish with all of today's modern equipment. We had tried everything from the most high-tech lures available to the old ones Jack had put in the time capsule he called his tackle box, neither were very productive. Most days we ended up leaving early, having felt only a couple bites and mumbled a few curse words. We both began to ponder if there were any fish left in the lake, was it becoming what Jack called "a dead lake?"*

*On the way home, I occasionally stopped by the bait shop. "Les's Bait & Tackle", the sign read. I was lucky enough to become friends with the older woman behind the counter. Martha was the widowed wife of the original owner, Les. She, having been there since the Lake was constructed in 1942 was glad to tell me about the lake's history. Originally constructed as a water reservoir for the steel industry during World War II, the lake had transformed into a favorite fishing destination for decades. This brought up the question of why there was a sudden drop in the fish population over the last few years. She looked at me for a moment and said, "I feel like it's my fault."*

As the sport of fishing advances, many other forms of "bait" are being created to better the odds of the fisherman. This means one no longer must use and kill a natural, live bait such as a worm, minnow, shrimp, or insect. The creation of artificial lures began a long time ago and is largely disputed, however lures were first mass produced in the early 1900's by companies such as Heddon and Pflueger. Artificial lures have increased in popularity due to their ease of use, convenience, and relative productivity. Ease of use and convenience stem from the ability to use the same lures repeatedly and not have to worry about live bait. Productivity refers to their incredible ability to catch fish.

*When Martha said she felt like it was her fault that the fish population was dropping so quickly, I was in disbelief. How could an honest, elderly woman have such a large effect on the*

*lake? She soon showed me what she meant. Her store was full of the best and most effective lures produced. In recent years, major developments had been made in the effectiveness of artificial lures. From the way they moved, the scent they gave off, and even the batteries some took; she began to realize that those irresistible lures combined with greater fishing pressure had begun to fish the lake dry. She wondered if we had advanced too far, if technology had worked too well, if too many fish had been caught.*

All of today's artificial lures can be broken into two categories: those that have a natural appearance, and those that do not. Clearly, those that appear natural catch fish because they closely resemble the natural prey that a fish seeks. The common term for utilizing a lure that mimics a fish's traditional prey is called "match the hatch". Simplistically, if a body of water has a large population of shad (minnow-like baitfish), then an angler might try to trick the fish with a shad patterned lure. Other examples of these are rubber worms, composite minnow lures, and plastic frogs. However, many of today's lures do not resemble a fish's natural prey. This lack of natural appearance begs the question, why would a fish try and eat something that looks nothing like what it normally eats?

*One summer, my family and I went on a vacation to the Florida Keys. I was excited for the experience and I especially looked forward to the fishing. "Islamorada", one of the five main islands were called, was advertised as one of the only prime fishing destinations left I existence. This idea, much of the world having been overfished or deteriorated by humans, didn't register with me at the time. What I did find interesting, however, was the lure I was told to use to catch the infamous Barracuda. The lure resembled a long neon green and orange rubber tube. It also had three large treble hooks and a section with rattling beads within its core. I thought it was a form of tourist scam by the local shop owner. I joked, "Why the hell would a barracuda bite this?"*

Artificial lures with unnatural appearances can work for several reasons. Many of these lures exhibit wild neon-like colors or rattling metal beads simply for the purpose of attracting attention. Similar to how a human often looks to see where music is coming from, fish are curious as well. These bright and loud characteristics are particularly useful in dark or murky water where a fish's visibility is limited. This ensures that although a fish may not be able to spot a live minnow, they will be able to locate a fake one via soundwaves or neon colors. Now that the fish's attention has been drawn to the artificial lure, there must be something that triggers the fish to strike.

The fish is then triggered to strike by a characteristic of the lure that has been included to trigger a fixed action pattern. Fixed action patterns are automatic, built-in, genetic behavioral reactions towards a certain stimulus. They are evolved within a species over time and are virtually unchangeable. Examples of fixed action patterns are how babies react to the faces of their parents, how birds respond to the colors of their territorial opponent, or how moth's fold their wings when they sense ultrasonic waves from bats. Fish also share these instinctive behavioral sequences. These stimuli consist of aspects such as frequencies of vibration, sound,

and light that are specific to the prey species. Because several species of fish eat the same prey, many of these triggers can overlap. This produces a relatively effective lure for various species of fish. When a species of fish is presented with one of its assigned stimuli, a fixed action pattern is released. In other words, when a largemouth bass senses a frequency of vibration identical to a swimming shad, it strikes.

*In the late summer, Jack wanted to give fishing at Berlin Lake one last shot for the year. I couldn't say no, although I doubted our odds of success. I gathered the equipment, checked the outboards, and rigged up the poles; I did everything in my power to leave Jack with a great fishing memory before I ventured to college. We were optimistic.*

*National Geographic* produced a documentary covering the recent decline of the Bluefin Tuna. Arguably one of the most magnificent fish swimming in today's oceans, Bluefin's can grow to over twelve feet in length, weigh over 1,500 pounds, and thrive to thirty years of age. Once so important to the ancient world, they have been painted on cave walls and minted as a symbol on coins. Today, nothing and everything have changed.

Today, Bluefin Tuna is considered some of the finest sushi in the world. So much value has been placed on their flesh, entire operations of large netting ships, spotter airplanes, and television shows have been produced on their behalf. *National Geographic* interviewed Sergi Tudela, a Spanish marine biologist, about the decline of the Bluefin Tuna population. Sergi responded "I have a very graphic image in my mind. It is of the migration of so many buffalo in the American West in the early 19<sup>th</sup> century. It was the same with Bluefin Tuna... a migration of a massive number of animals. And now we are witnessing the same phenomenon...right now, right before our eyes."

A few years ago, I took a fishing trip out of Ocean City, Maryland. It was a deep-sea fishing charter, on board the "Restless Lady". Captain Todd Kurtz, a man who had grown up deep sea fishing along the east coast, was the captain. While riding out to the tuna fishing grounds, I recall him chatting about how they had been catching fewer fish every year. "Business is still the same though" he shouted over the roaring outboards. "People hear the news; they want to catch one before they're gone."

These events add up to a definite conclusion; the world's fish populations are indeed declining. Is it simply the growing human population needing a greater amount of food? Surely, this is a contributing factor but there must be something more. Pollution, climate change, or even natural evolution could all be partially to blame; however, the main contributor is overfishing. Technological advances have provided us with the capability to deplete our world of fish, which is precisely the path we are on. Times do change and the world does evolve, however there comes a point where we must take responsibility for our actions.

I recently picked up a book by Mark Kurlansky, entitled "*World Without Fish*." In his book, Kurlansky explores where our current path is leading. He writes, "So many of the problems of modern fishing were created by the development of equipment that was just too

efficient.” Kurlansky offers the solution of greater limitations on the fishing industry. If more sustainable fishing is adopted, he believes we can prevent a world without fish. Kurlansky is spreading the all-important message of preservation and responsibility. He reminds us, “There is the natural world, and there is man. But man also belongs to the natural world.”

Taking action would require greater limitations to be placed on tackle companies, commercial fishermen, and even recreational anglers. The problem of overfishing is not isolated in one region of an ocean or branch of a stream; it can spread through every body of water due to the simple fact that all ecosystems are connected. If the balance is upset, a new system will take over, and soon there might not be a system at all. As fishing equipment advances, it is no different than other modern technologies. It seeks to be better; more efficient; and, as the slogan of the fishing company *Shakespeare* states, “*Catch more fish!*” Ironically, this is exactly what we must avoid.

*Out on the Jack’s boat for one last time before I left for college, the day was turning out as expected. We had only felt a few bites here and there, perhaps a figure of our sunbaked imaginations. Before we called it quits, I decided to throw one last cast. Reeling in a chartreuse-colored, shad-imitating crankbait at medium pace, I felt a sudden strong tug on the line. Jack, who had already packed up solemnly, jumped out of his chair in excitement. He eagerly reminded me, “Don’t put too much stress on the line, you might lose it!”*

*At that moment, it all made sense. If we place too much stress on the line, we might lose the fish. If we place too much stress on a fishery, we might lose the species. Like many other aspects of life, balance is the key. With this in mind, I gladly released the Berlin Lake walleye with the hope that the species would never become “the one that got away”.*

## Works Cited

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