

Captain Joe was standing on the wood dock waiting for the next boat to approach and load up on to their trailer. He had volunteered to help the local Coast Guard Auxiliary and the Florida Fish and Wildlife Conservation Commission (FWC) to check any boats of any illegal fish at Matheson Hammocks Park that afternoon. He had already seen one or two boats with fish that weren't supposed to be caught out of season or some that were too small, and he had to call over the FWC officer to come and fine the fishermen. Some people just didn't know, or some were tourists that had rented the boat for a day. It sometimes made an uncomfortable situation for Captain Joe since he was a well-known commercial fisherman and some local people would argue with him that he would "betray" them to the FWC for a simple mistake or "misunderstanding". He had recently joined the Captains for Sustainable Fisheries, an organization of commercial fishermen advocating for better fishing practices and stronger environmental policies and wanted to be more proactive in the conservation scene in the county.

As the boat approached the dock, Captain Joe offered to help grab their ropes and get them into the dock. The driver and one other man on the boat seemed annoyed when they saw Joe wearing an FWC volunteer t-shirt. He then introduced himself and they replied by saying that their names were Mark and Tom. Joe then asked, "do you mind if I see your fishing license and could I check your cooler and live well boys?" The two men looked at each other and nodded over to Joe with faces of frustration. Joe inspected the license, opened the live well, and saw that all the fish were legal and considered the correct size for the season. Then he moved towards the cooler and saw cans of beer and bottles of water atop a bed of ice.

He knew that some fishermen tried to hide their catch underneath the ice and got out a plastic scoop from his bag. He moved the ice to the side and found what they were hiding, almost a dozen undersized fish and stone crab claws that were considered illegal this time of year.

"C'mon man we can keep this between us, no one is perfect and there are barely any of those

little guys in the cooler,” said Mark. “Yeah, you could probably let this slide and avoid the paperwork for your friends, there must be other boats out here with a lot more than what we are bringing in today,” said Tom. Joe stood up holding one of the small ones, barely an adolescent fish and said “you both seem to know the law, I see the sticker on the side of your boat with the measurements and size descriptions of common Florida saltwater fish. You guys have your fishing licenses, so you should know that there are rules for fishing out here in the bay.” The two men shook their heads, now even more annoyed with Joe, and started to think of other ways to get out of the situation.

Then Tom said, “have you ever caught a fish undersize captain, you have been fishing for years and probably slipped up once.” “You’re right I have caught a couple small ones out there, but recently we have seen a large decline in fish populations out here in Biscayne Bay,” said Joe. “Ok, but how can a few small fish on our boat harm the entire ecosystem out on the bay, we aren’t destroying the whole reef and we were hoping to get larger fish than what we caught today,” said Mark. “Yes, the couple of fish you caught today won’t have a tremendous effect on the bay but what if everyone here had those same thoughts. What if they decided that they could go and catch anything they wanted regardless of the rules and regulations?” “But they haven’t, a majority of fishermen in the bay are following the rules and sometimes these regulations are absurd. My father and I were able to fish a variety of species throughout the year and now we must keep up with the changing rules the state and all of these environmental agencies put out,” said Mark.

Tom then said, “It’s pretty unfair to the recreational fishermen, we are supposed to be one of the great fishing capitals in the world and Biscayne Bay is supposed to be our playground as a national park.” “But all national and state parks have their rules for important reasons, overfishing is a problem in this country and we must be more sustainable if we want to maintain

our reefs and fisheries.” “Our tax dollars are supporting these conservation initiatives, I think we have earned the right to enjoy these waters freely,” said Mark. “It’s hard to disagree with you, but the law is final, we can’t do whatever we want to do,” said Joe. The two men were still annoyed and wanted to be on their way, so they sat down and waited for Joe to get the FWC officer. Officer Alison came over and boarded the boat, pulling out her notepad to write up the fines. The men took the fine and began to ready their boat to be loaded on the trailer. Alison and Joe were walking over to the shelter to get out of the sun and began to talk.

Alison asked, “how did it go with those two over there, they seemed pretty annoyed with you but not too aggressive.” “No, they were telling me about how things were a lot simpler in the past and were arguing with me to avoid getting fined, they just don’t see what commercial fishermen are seeing,” said Joe. “You’re right, we have seen the new reports from both our agency and NOAA and know the impact overfishing is having on both the commercial fishing industry and the environment. I understand that these are pretty hefty fines and I feel bad having to give them out to local residents that are just trying to have fun in the park, but rules are rules and we must follow them to protect these diminishing fisheries” said Alison. “I agree, many of them remind me of my friends and fellow captains, maybe we should be a little more lenient,” said Joe.

“Protecting fisheries needs to be a priority, overfishing mixed with pollutants, increased water temperatures from climate change, and ocean acidification is impacting our bay tremendously,” said Alison. “That’s true, we have also taken serious losses with the recent algae bloom from Lake Okeechobee, just imagine the rising prices for fish and what little supply we will have this season,” said Joe. “Oh, look here comes the next boat, I’ll take this one and you can call me over if you need me for another inspection,” said Alison. “Hopefully that’s the last violation for today,” said Joe.

Commentary

The debate on overfishing and sustainable fisheries has been widespread. Negative impacts on fisheries have been observed across the globe. According to the Food and Agriculture Organization of the United Nations (FAO), in 2016 approximately 31% of fish stocks have been lost and the current trend of fishery sustainability is not stable.¹ Yet, the fishing sector is a large segment of the global food industry, according to the National Oceanic and Atmospheric Administration (NOAA) fisheries contribute \$50 billion in gross domestic product annually and the FAO estimates that 56.6 million people are engaged in the fishing industry.² The debate is rooted in whether or not people have unrestricted rights and ownership to wild fish or if there should be stronger regulations on fishing, drawing from both a moral responsibility to the environment and future generations that could enjoy sustainable fisheries.³

Both sides provide good reasoning for and against the current trends in fishing. Supporters argue that fish provide a valuable source of nutrition, according to the FAO it provides at least 3.1 billion people with 20 percent of their animal protein intake.¹ Fish are an important aspect of the nutrition and income of communities in developing nations. Yet, others would argue that overfishing will lead to an ecological collapse. Coupled with climate change and increasing ocean acidification, fisheries are seeing a decline not only in overfished areas but also in underfished areas as well.¹ Conservationists would argue that because of all these factors, there need to be stronger protections to this typical tragedy of the commons. Marine protected areas and fishing regulations must be created to ensure that future stocks are available for

¹ *The state of world's fisheries and aquaculture 2016*. (2016). The Food and Agriculture Organization of the United Nations. Retrieved from <http://www.fao.org/publications/sofia/2016/en/>

² Safina, C. (2003). The continued danger of overfishing. *Issues in Science and Technology*, (4), 49.

³ Pauly, D., & Stergiou, K. I. (2014). The ethics of human impacts and the future of the earth's ecosystems: Introduction. *Ethics in Science and Environmental Politics*, 14(1), 1-5. doi:10.3354/esepp00154

subsequent generations and that populations can stay strong against the threat of climate change and possible extinction.

In this particular case study, the reader is introduced to the topic of overfishing at a local level in a developed nation. In South Florida in particular, researchers have identified and estimated that about 71,000 jobs and \$6 billion have been created from coral reefs in the region.⁴ Scholars are urging policymakers and scientific government agencies to develop more dynamic management strategies for fisheries off the coast of Florida.⁵ In developed nations, policymakers must combat overfishing through strong regulations on both commercial and recreational fishermen. These regulations focus on environmental protection and conservation, unlike policies in developing nations that strive towards building up fisheries to maintain fish populations for subsistence economies. In South Florida, strategies have included the proposed development of marine protected areas and limits to size and quantity of fish caught, but researchers have asked, has it been enough? Is there a threshold for fisheries where, if too many fish and sea life are taken out of the oceans, their communities be able to rebound?

Mark and Tom represent the everyday recreational fishermen that want to enjoy the bay and its “abundant” natural resources. The issue is presented at the local level to showcase the everyday perceptions of recreational fishermen who see the issue separate from the global network of fisheries, not seeing how fish populations around the world are interconnected. Mark even points out that when he was younger, he and his father enjoyed fishing in the bay with very little environmental restrictions and regulations. Fishing during that time was a simple hobby for

⁴ Johns, G., et al. "Socioeconomic study of reefs in southeast Florida: Final report, Oct. 19, 2001, for Broward County, Palm Beach County, Miami-Dade County, and Monroe County." *Florida Dept. Fish and Wildlife Conservation Commission, National Oceanic and Atmospheric Administration, Wash., DC* (2001).

⁵ Ault, Jerald S., et al. "Towards sustainable multispecies fisheries in the Florida, USA, coral reef ecosystem." *Bulletin of Marine Science* 76.2 (2005): 595-622.

everyone in the city to enjoy. The establishment of Biscayne National Monument in 1968 and the subsequent national park in 1980 brought an array of government agencies and scientists to the region to study the overall health of the ecological community, which led to a landmark study in 1997 valuing the bay's ecological services at a max of \$36 million in 2016 dollars.⁶ Overfishing in Biscayne Bay coupled with anthropogenic climate change, leading to rising sea levels and increased ocean acidification, has had detrimental effects on bay ecosystems such as coral reefs.⁷ Efforts to create a marine reserve within the national park have been controversial, policymakers and government agents know that it will cause conflict between them and recreational fishermen that will lose a large percentage to protected "no take" zones, but the benefits would be an overall increase in fisheries with no heavy impacts in other recreational sports for tourism such as snorkeling and diving. Similar scenarios have been documented around the world, using these strategies to strengthen fisheries while also regulating commercial fishermen.

Mark and Tom represent an emotional appeal to the bay, arguing that they have a right to freely catch fish and other wildlife. They explain to Joe that since the bay is in a national park, they have a right to freely enjoy it as they see fit. These views relate heavily to the anthropocentric Judeo-Christian view many Americans share. As a predominantly Christian nation, the people of the U.S. have adopted a view that they can freely use land and nature in whatever capacity, not preserving it for its intrinsic value. This utilitarian view has been an issue in both recreational and commercial fishing. Recreational fishermen see their impacts as relatively low, not calculating the impacts they have as a whole. Commercial fishermen focus on

⁶ Costanza, R. et al. The value of the world's ecosystem services and natural capital. *Nature* 387, 253–260 (1997).

⁷ Lesneski, Kathryn C. "The Role of Active Reef Restoration in Promoting Ecosystem Health in Biscayne National Park and Biscayne Bay, Miami-Dade County, Florida." (2016).

the need to fish for an income, see these restrictions as unfair regulations upon their ability to support themselves and their families.

Capitan Joe is introduced as the newcomer to the sustainability movement, recently joining an organization that focuses on advocating for sustainable fisheries and conservation policies. While trying to convince Mark and Tom that these behaviors affect the environment in a detrimental way, Joe begins to question his beliefs since he knows it will discourage and separate people from the park, a place where he believes everyone should enjoy and love. He sees both the intrinsic and utilitarian values of the bay ecosystem and seems to struggle with fining the recreational fishermen who “just want to have fun”. Yet, he begins to backtrack and is reminded about the future and fragility of the bay ecosystem by Officer Alison. He is reminded of the statistics and hard evidence that local and global fisheries can no longer sustain these behaviors from both recreational and commercial fishermen.

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