

# FIRST PLACE WINNER: STUDENT WRITING CONTEST

## Stalking the Flats in the Name of Science



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The mid-day sun beats down on me as I'm standing with my feet firmly nestled in the sand of a tidal creek in Eleuthera, The Bahamas. I look down and notice that the water once above my knees has dropped to mid-calf. I cast my gaze back towards the mangroves where the previously flooded root system is becoming fully exposed to the light breeze that moves my hair. "They're coming," reassures Andy, who's poised like a stork in a quick-dry shirt. I watch in anticipation, scanning the fleeting water looking for movement and flashes of silver. I realize we aren't the only ones waiting patiently as a juvenile lemon shark swims by. Hairs stand on my arms as an hour has ticked away while I remain almost motionless, like a mannequin in a store-front window. Then it appears, a wave of movement coming towards me! I stiffen and then move slightly into my strike pose. "Okay, now!" signals Andy as we rush to close the seine net on our well-stalked prey. Minutes later the net is alive with action and adrenaline courses through our veins as we hurry to release the bycatch and extract our target species, bonefish.

With the bonefish in submerged holding pens, I prepare for surgery. One by one we surgically implant the bonefish with ultrasonic transmitters and release them so that we can track their movements. To do this, listening stations strategically placed along the coastline and in multiple tidal creeks are used, like a scanner at the grocery store. As tagged fish swim by a listening station, the date, time, and transmitter ID is recorded and remains in memory until downloaded onto a computer. With another 10 bonefish tagged we are ready to transport the remaining fish

back to holding tanks at the Cape Eleuthera Institute (CEI) for future studies.

One may wonder why we are so curious about studying various aspects of bonefish. Well, if you were to say the word "bonefish" within earshot of an avid angler, it would likely send chills up and down their spine, as these highly prized sport fish are known for a good fight when hooked. Built for speed, this torpedo-shaped, silver bullet of a fish has generated a billion dollar per year industry in the Florida Keys alone. In fact, estimates in Florida suggest that each bonefish has a lifetime value of \$75,000, although this fails to consider the ecological services that this species may provide. Recreational fishing for bonefish can easily support the economy of many coastal communities in small island nations such as The Bahamas, where tourism is responsible for 60% of the gross domestic product. However, even though most anglers typically practice the conservation ethic of catch-and-release on this species, populations throughout their circumtropical distribution are on the decline in many of the developed/older fisheries. Unfortunately, limited scientific data exists on bonefish, a gap which sufficiently hinders effective management strategies. This coupled with a general lack of understanding of tropical/subtropical tidal creeks makes it an extra challenge, especially when you consider that tourism and shoreline development is commonly concentrated in coastal areas where bonefish reside.

The good news is that there have been many recent efforts by researchers such as our group at CEI aimed at closing the gap in bonefish biology. To date, we have assisted in

the development of best handling practices by determining the effects of air exposure and exhaustive exercise on the survival and stress physiology of bonefish, as well as determining methods for effectively transporting and holding fish in captivity for long periods of time. We also have analyses under way examining the movement of these fish in relation to tides, temperature, predators, and spawning events--all key pieces to understanding bonefish biology--and broadly understanding the dynamics of life in tropical flats habitats.

As I stand once again in the tidal creeks, watching the aquatic life go by me at varying speeds, and in different forms, I hope to myself that the work I'm doing will help ensure that future generations can catch or just observe bonefish in the numbers we see today, or even better, as they were 100 years ago.