



Citizen Scientist

written by Captain Joseph Ierna Jr.
Ocean CREST Alliance
April 2016

Hanging out this past February with my friend and OCA Advisor Dr. Sylvia Earle, we spoke candidly about what we have both witnessed firsthand over our lifetime out on the Oceans! We were gathering together and sharing our experiences and knowledge in support of the first Ocean CREST Alliance – Palm Island Resort Marine Protected Area Fundraiser; a unique event representing knowledgeable and diverse groups from the conservation sector. During this event I was representing Ocean CREST Alliance, a young grass-roots NGO assisting world leaders in the design, development, and operations of a Global Network of MPAs. Mission Blue, an international NGO with global reach, was also involved in this

"Our goal: at least 20% of our Oceans in some form of protection, by the year 2020!"

process under the guidance and knowledge of Dr. Sylvia Earle. Other NGOs, such as the Guy Harvey Ocean Foundation, posting it's "brand" status with celebrity artist, recreational fisher, and diving marine biologist, Dr. Guy Harvey, and Monte Marine Laboratory, a solid, science based educational facility represented by Dr. Bob Hueter, were also involved in this event. Government officials were also included in this process with the involvement of NOAA and the National Marine Sanctuaries in which Dr. Billy Causey represented the marine and weather arm of the USA government. Our collective mission is to create great awareness and educate all in attendance about Marine Protected Areas (MPAs) and the importance of establishing more MPAs.

We of the Sea is a TBTI publication series that presents stories and experiences of small-scale fishing people, communities and organizations, told in their own voices using their own expression and images. Through the people's perspective, We of the Sea portrays key essence and meaning of small-scale fisheries and invites us to dive into the world that we may or may not be familiar with.

Produced by

Too Big To Ignore (TBTI)

TBTI is a global partnership for small-scale fisheries research that aims to elevate the profile and highlight the importance of small-scale fisheries around the world.



Captain Joseph speaking with Dr. Sylvia Earle

As you could imagine, we are all friends. Speaking with these superstars of our Oceans, and especially with the most honored oceanographer on our planet, Dr. Sylvia Earle, can be quite humbling when it comes to understanding our ocean ecosystem. However, as Sylvia stated: “Joseph, by what you have seen and experienced in your lifetime, you also have collected valuable data about the oceans and by doing so, through your writings, pictures and conservation efforts, you are contributing directly to the research and science needed to better understand, protect and manage our oceans and planet - you are a **“Citizen Scientist”**. Throughout my life, I have been privileged and honored to live, play, and work among commercial

fishermen communities; most of them small-scale fishing communities. The sea has been my lifestyle. Growing up in St. Petersburg, Florida, I was directly involved in mullet fishing, the stone crab fishery, and the swordfish industry at a young age. I can recall catching tens of thousands of pounds of mullet in one single haul of our gillnets and tens of thousands of pounds of swordfish on 35 miles of longline. All of the time we thought the oceans were an unlimited resource, we now know we were wrong! Even as a recreational fisherman, I recall catching hundreds of mahi-mahi in a single day of trolling and seeing seabirds diving for bait balls at the surface the size of a football field while we reeled in dozens of yellowfin tuna, from 10 pounders to 100 pounders that fought like a freight train.

"We do not see marvels of nature like this anymore."

Fast forward to where I reside now, on Long Island Bahamas, and the stories are the same – it is not like it used to be! Long Island is a small-scale fishing community and most all of us are family one way or another and we are all friends! The majority of the fishermen use small craft up to about 25' in length and there is a small fleet of 5 vessels operating in the 50' length, but as they all say these days, when asked how fishing was, they reply “scrappy” – meaning

they do not see marine life like they used to see it in the years gone

by! None of the 4,000 residents are far from the sea, with many inlets opening up to spectacular cuts and bays leading to the ocean. This, combined with our lands rising up to an elevation of 175', makes Long Island one of the most diverse and beautiful islands in the Bahamas. In fact, we boast a rare and beautiful coppice forests not found on many of the 700 Bahamas Islands and Cays.

"Small-scale fishing, although not what it used to be, is still the main economy of the islands"

Long Island is thought to be the third stop in the Bahamas of Christopher Columbus when the Nina, Pinta and Santa Maria landed in the northern part of the island in 1492, naming the island “Fernandina” and calling it “the most beautiful island in the world”. The island is actually a very long island, 80 miles long and 4 miles wide, and no matter where you live on the island, when the sea is raging you can hear, smell and see the sea mist in the

air. You could say each Long Islander lives by the rhythms of the ocean. Our soil is poor and the rain, when it comes, is only about 55 inches per year, with the bulk coming down from May to October. Although in the early 1900's, Long Island was known throughout the Bahamas archipelago as being a land of bountiful food and the best mutton (sheep or goat) in the Bahamas, those days are gone as none of the young generation wishes to engage in this very labor

intensive business anymore. As a result, almost all of the food we consume on the island is imported, making us very vulnerable and dependent on the outside trade and commerce and the issues related to the world economy and climate change. Small-scale fishing, although not what it used to be, is still the main economy of the islands, so when fishing is slow, the island's economy is slow. In a survey performed by the banking industry 10 years ago, it was determined that the breakdown of Long Island citizens is as follows: 1,000 persons are currently of working age, 2,000 are children and 1,000 persons are elderly: We are truly a small island community.



Map of the Bahamas

Economically important species

Economically important species are the spiny lobster (the largest economy of Long Island fishing), fin fish, which include groupers and snappers, and the queen conch. The availability and abundance of all species caught historically, just offshore the local waters of Long Island, has decreased dramatically in quantity and the individual size of the fish! Now our fishermen, who make their living from the sea, must travel 30 to 100 miles away to the Ragged Island chain to satisfy commercial fishing needs. Our subsistence fishermen also have stories of less and less fish, lobster and whelks near the shores of Long Island. Not only are these economically important to the community, but these species also represent important Bahamian food and culture, an essential part of “life” to all Bahamians and our #1 economy: tourism!

Modern struggles

In the past 30 to 40 years, fishing in the Bahamas Islands was accomplished with small sailing vessels called “smacks”, some with small auxiliary engines, and the preferred method to catch was free diving or handlining the reefs

and shallow banks of the Bahamas. Long Islanders would make day trips and catch enough during the day to feed their families, sell the rest to make some dollars to build homes; they took care of all their families’ needs quite nicely!! Today, fishermen have large motor vessels burning massive amounts of fossil fuels, with huge freezers that hold tens of thousands of pounds of product. The fishermen, 10 to 20 persons per vessel, will stay out to sea for 2 to 3 weeks or

"Plain and simple, our small island economy of small-scale fishing and the community are suffering and not experiencing growth."

more until their freezers are full or they run low of fuel, whichever comes first. Most are complaining that they are not

making a living like in the past and cannot make ends meet; many have abandoned fishing. They have mortgages and bills associated with the high fuel costs, food bills and the everyday needs of modern society. Throw into the mix the ever-present issues with poachers in our waters and the devastating effects of hurricanes as we experienced by Joaquin in October 1st, 2015, and it’s evident that our fishery and fishing industry is suffering. Plain and simple, our small island economy of small-scale fishing and the community are suffering and are not experiencing growth.

Community involvement

Through the Ocean CREST Alliance MPA facility model and our unique e-share programs, we are working closely with the community to accelerate the changes needed to reverse this decline of our resources and economy. Our programs in Long Island presently focus on 4 main areas: fisheries, ecosystems, coral reefs and marine biodiversity. Present programs include Nassau Grouper Spawning Aggregations, Coral Nursery and Restoration, Invasive Lionfish Control and establishing a new fishery. All of these initiatives are in direct support of establishing a network of Marine Protected Areas with a focus on good education and good enforcement. Together with the Long Island fishing community, national, and international support, OCA has spearheaded the design and development of the proposed 257,000-acre Marine Protected Area off of our shores. Named the Long Island Marine Management Area, or LIMMA, this MPA offers hope for the community to make the once rich waters surrounding Long Island healthy again, so the generations to come can continue their once rich fishing heritage and family island lifestyle.



Enrico “Rico” Burrows and Angelo Constantakis, Long Island Bahamas Crawfishermen

A significant concern

In our series of meetings held with the community, local fishers and stakeholders on Long Island display an impressive depth of local ecological knowledge concerning the resources of their island and its marine waters. For the most part, these local fishers and stakeholders welcome the interest of OCA and our partners in providing enhanced resource protection. Local fishers and stakeholders on Long Island recognize that the near-shore fisheries of the island have been depleted and that some tidal creeks and fishery nurseries have been damaged and are in need of restoration. Local fishers express significant concern over the alleged presence of foreign fishing vessels depleting fisheries in offshore waters around the Bahamas (pictured below) and are interested in developing both governmental and non-governmental solutions to this complicated international issue.



Some local fishers had participated in meetings to discuss MPAs on Long Island in the past. These local fishers were apparently left with the impression that MPAs primarily signified the establishment of “no-take” zones. Local fishers appeared unfamiliar with the term “multi-use” when used in conjunction with marine protected areas. When this term was explained by OCA and the Bahamas National Trust representatives as a “new management philosophy” that goes beyond “no-take”, the local fishers better received, even embraced the discussions about localized fishery and marine resource management. Some local fishers expressed concern that the results of studies conducted on the Long Island fishery and marine resources in the past have not been systematically returned to the Long Island community and how they wish to be part of the process before, during and after

an MPA is established. OCA and our partners provided participatory mapping exercises and along with the discussions during the meetings, this suggested that a multi-use marine zoning plan that includes local fisheries management rules could be implemented for the marine waters of Long Island. In addition to our marine efforts, the local government representatives of Long Island were especially interested in the potential to enhance terrestrial resources, including cultural resources and land-based birding opportunities, in particular, the idea of a “heritage trail” that celebrates Long Island’s unique cultural heritage and offers the potential to enhance island pride and tourism.

It was our passion for all things ocean that first inspired OCA, but beyond that, it was a great inspiration and acceptance of this small fishing community of Long

Island – our home, that has nurtured OCA into the type of organization we are: part of the “family island” community of the Bahamas, living each day with the successes and losses, the ups and downs of a small developing island state. This experience has been our greatest teacher concerning the issues related to islands and small-scale fisheries. Adding to this, our direct involvement with global conservation leaders and groups, and the global ocean issues we are all facing was the driving force and inspiration behind the establishment of our MPA model and our E-share programs. OCA is providing real solutions to the real issues.



MPA mapping exercise



Layout for the future OCA MPA Facility

As we build and operate the LIMMA, we have come to better realize that like our oceans, we are all connected. We have also realized that one of our greatest beacons to follow may lie in our past – we must look to the past to guide us into the future! Speaking with the elderly “subsistence fishermen” of the island, we have learned that handlines and free diving the reefs offered the fish and lobsters a chance, and that mechanized methods used today, including traps or what the locals call “condos”, hookah dive gear, and the sheer number of fishermen in our waters, is just too much density of activity for the ecosystem to thrive.

Fishermen and scientists around the globe have now witnessed and learned that to fish a school when they are breeding, commonly known as spawning aggregations, is not smart and is killing off the breeders and the species each year little by little, until it is too late for recovery. It is with this observation that OCA sees inspiration and knowledge from the methods and operations of marine conservation being practiced in the country of Cuba.

Not by choice, but because of being isolated from the “industrialized” world, Cuba's natural environment has not suffered the ills that developed countries have. For OCA, this is a great “snapshot of the past” in how we may look and learn from, to take care of and respect nature, so nature can take care of us humans with good food, water and health!

Yes, we humans are the problem of why our ocean fisheries are in decline, but we are also the solution to its repair if we are smart and work with nature. If we want the future generations to know and enjoy the majesty of our oceans

and the magnificent creatures in the oceans we must act now before it is too late. In fact, as my good friend Dr. Sylvia Earle says: “We must protect the oceans as if our lives depend on it ... because they do”.

Now I am not a schooled scientist, nor are my fishermen friends and family, but the knowledge we all have gained over the generations by being on and in the Oceans our entire life is telling us it is time for great change before it is too late.

Small-scale fishermen and the numbers they represent is a real and everyday issue that is Too Big To Ignore. Let's take this Citizen Science research and data to the forefront of our leaders and policy makers to repair, protect and better manage our oceans. It is up to all of us individually to be the stewards of our natural environment, our planet, our home!

OCA has a theory we have coined, which states: $E^2 = MC$, which means Education + Enforcement = Marine Conservation, or as we call it our “theory of responsibility”. We believe that these two elements – good education and good enforcement of our oceans - represent one of the the most significant changes for our marine environment we could make today! Let's do this together today for our life, health, future generations and our quality of life to come!

How to cite:
 Captain Ierna, J. Jr. (2016). Citizen Scientist. *We of the Sea*. 1/1. toobigtoignore.net

Photo credits:
 Captain Joseph Ierna Jr.

$$E^2 = MC$$

↓

**Education + Enforcement
 = Marine Conservation**