



# *Key Biscayne's* Citizen Scientist Project

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## NEWSLETTER

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*Volume 1, Issue 2, January 2014*

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### ***Editorial***

*An initial activity of the Citizen Scientist Project (CSP) was to have a Survey developed and implemented by Mr. Manoj Shivlani to determine resident's uses and views on Key and Virginia Key coastal and marine resources. The Survey was provided to 8000 Key residents and the results are to serve as the basis for future CSP activities. A summary of Survey results are provided in this Newsletter.*

*In addition, other activities conducted by the CSP since the June Newsletter are provided. As will become obvious, we are providing an ambitious program to Key residents to learn about the Island's resources. As residents become more aware of our events, we hope that participation will increase.*

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— LATEST UPDATES —

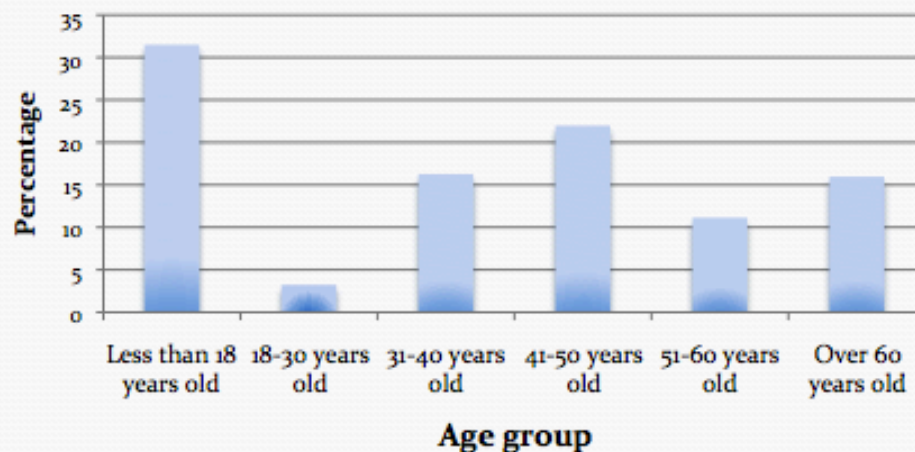
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# A summary of Key Biscayne residents uses of and uses on island-wide & regional coastal & marine resources

Manoj Shivlani  
Marine & Coastal Research Corp

This study performed an Internet-based survey of Key Biscayne residents to learn about their uses of the region's resources, views on resource conditions, ratings of potential harmful factors on these resources, attitudes concerning management priorities, and willingness to participate in citizen scientist research and monitoring programs. The results that follow are based on 735 returns, which identified respondents as long-term residents (who on average have lived on the Key for between 6-10 years), of whom the majority lived on the island on a year-round basis. The majority of the respondents were female. A wide variety of age groups participated in the survey, as over 30% were younger than 18 years old, almost 20% were between 18 and 40 years old, almost 35% were between 41 and 60 years old and 15% were over 60 years old.

## Survey demographic results

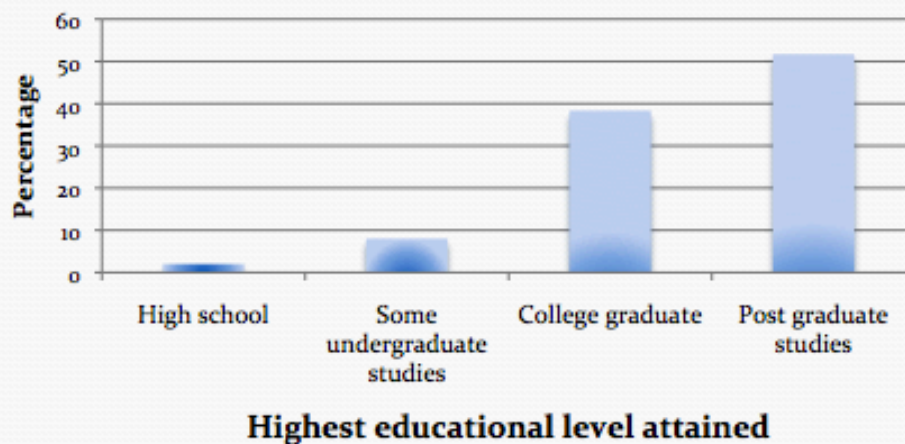


- The sample population was similar to that in the 2010 US Census

- The average age was slightly older than 31-40 year olds

- The sample population was very highly educated

- 90% held a bachelor's degree or higher



The survey results showed that use of Key resources varies by resource and activity. Some activities were very popular and enjoyed by a large percentage of respondents. For example, 94% of those who completed a survey visited one or more of the island's beaches, 90% frequented green spaces such as the Village Green, and 77% used biking and/or walking trails. Among other water-based activities than beach visitation, 71% of the respondents reported fishing from the shoreline and/or vessels, 54% enjoyed boating off Key Biscayne, and 39% took dive trips or snorkeled off the island. Many activities, such as beach visitation or boating, involved multiple uses. For example, of the residents who visited Key Biscayne and Virginia Key beaches, 84% walked or jogged on the beach, 76% went swimming, 46% participated in nature watching, and 43% sunbathed. Thus, the island's beaches and other environmental resources offer multiple amenities which residents take advantage of at high rates of participation.

## Key Resources & Participation from Resident Survey



Beaches  
(94%)



Coral Reefs  
(39%)



Green Spaces  
(90%)



Mangroves



Pathways  
(77%)



Waterways  
(54%)

When asked why they picked particular sites, distance from home was the main criterion for many activities. For example, 80% of the residents surveyed stated they selected the beach that was closest to their home. In fact, 82% of the respondents identified Key Biscayne Beach as their primary beach, compared to 10% who identified Crandon Beach, and 6% who identified Bill Baggs Beach.

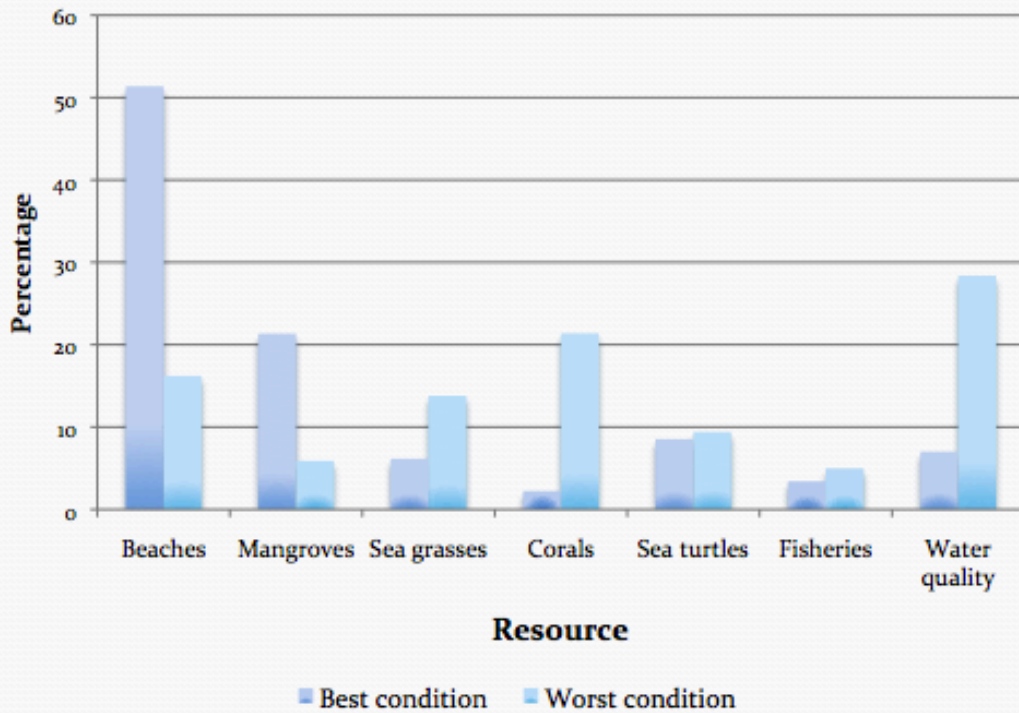
Questions were posed relative to the following green spaces on both Keys; the 808-acre Crandon Park space, the 400-acre Bill Baggs Cape Florida State Park, the Village of Key Biscayne green space and the 8,5 acre Virginia Key Beach Park. Almost 90% of the residents stated that they used one or more of the green spaces. Rates of visitation were high, over 31% used green spaces 2-3 times per week. The Key Biscayne Village Green experienced the most monthly uses (~37%). Crandon Park had ~27% of all monthly visits, Bill Baggs (~26%) and Virginia Key (~11%).

Biking and hiking trails included the Crandon Park trails, Village of Key Biscayne bike path and Bill Baggs Park trails. Over 77% of responders used one or more of these trails. The rate of use of trails varied considerably. For example, no rate of use exceeded 25%. Crandon Park trails were used most frequently (~80%), The Village bike path was used ~78% by responders and Bill Baggs, ~65%.

In terms of fishing, just under half of the respondents reported fishing off a boat as their primary fishing activity, less than 15% fished from the shoreline, and just over a third fished from both boat and the shoreline. Over half of the respondents, or 57% who reported fishing as an activity identified themselves as anglers (i.e., those who fish using a hook and line). The location of water-based use activities, such as boating and fishing, was in part dependent on the nature of the activity. For example, most respondents who reported fishing as an activity fished mainly eastward off the Key, boating tended to be concentrated around the island, and diving and snorkeling occurred mainly off the eastern side of Key Biscayne.

Survey results demonstrated that residents' knowledge of particular resources was mainly based on their use of those resources. Thus, most residents felt knowledgeable about beaches and the least about fisheries (in terms of fisheries abundance). The survey also included a question about the condition of the Key resources, but most residents responded that they did not have enough information to provide answers. Overall, however, those residents who did reply felt that beaches were the healthiest resource, and that water quality surrounding Key Biscayne and Virginia Key was the least healthy resource.

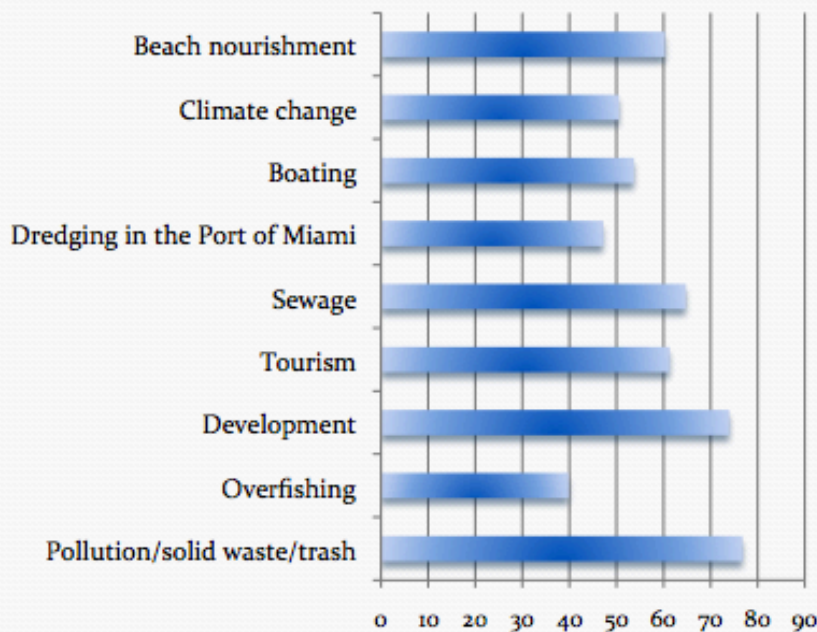
# Resources in the best and worst conditions



- Over half the respondents believed that beaches were the resources in best condition
- By contrast, almost 30% believed that water quality was the resource in worst condition

Respondents were very concerned about the stressors that affect the overall quality of the island's resources. In fact, residents participating in the survey ranked multiple stressors as presenting a combined threat to Key Biscayne and its resources, with pollution (identified by 77% of residents), sewage (65%), and development (64%) leading other stressors. But, it should be noted that half or more of the respondents also identified tourism (61%), beach nourishment (60%) and climate change (50%) as important stressors.

## Activities that impact Key Biscayne resources



- At least 40% or more of the respondents felt that all listed activities had major to moderate impacts on Key Biscayne resources
  - The most severe impacts were those resulting from pollution and development
  - But, 29% were unsure about the dredging project in the Port of Miami, and 25% were unsure about overfishing

Residents agreed that increased and improved environmental education should serve as the top priority to address stressors, but they also believed that other approaches, including restricted access to protect vulnerable or over-exploited resources and improved existing management, should be used in tandem to achieve conservation goals. By contrast, respondents were less willing to accept daily limits or other types of carrying capacity approaches to address stressors.

Finally, the results determined that there is considerable support for participation in the Citizen Scientist Program. Almost half of the residents surveyed agreed to participate as citizen scientists, with 70% of these residents were in favor of participating in activities related to beaches and water quality and over half with sea turtles. While fewer residents were willing to participate in other activities, such as fisheries, it is expected as the Citizen Scientist Program increases the residents' knowledge base on its natural resources, their interest to work in a variety of activities in the coastal and marine environment will likely increase.

## ➤ Previous Events

### The Citizen Scientist Project Participates in the World Water Monitoring Challenge



The World Water Monitoring Challenge (WWMC) describes the project on its web site, <http://monitorwater.org/>, as "an international education and outreach program that builds public awareness and involvement in protecting water resources around the world by engaging citizens to conduct basic monitoring of their local water bodies". To date 41 countries have participated in the program during 2013. The basic monitoring includes collecting water samples, in our case from the ocean off the Key, to obtain values of the water's pH, oxygen, water temperature and turbidity and measuring air temperature. pH, oxygen and turbidity provide a measure of the health of the ocean at the measurement site. The Citizen Scientist Project partnered with Bill Baggs Cape Florida

State Park and the Marjory Stoneman Douglas Biscayne Nature Center Inc. to occupy 3 sites along the beach off Key Biscayne on September 28th 2013. The Nature Center occupied the northernmost site, located in Crandon Park, the CSP occupied the middle site on the Key Biscayne Village's beach and Bill Baggs Park occupied the southernmost site, which was located within the Park. Citizen Scientists collected data at each site. The Key Biscayne group forwarded approximately 30 distinct observations of water temperature, pH and oxygen to the WWMC data center. The Key observations of oxygen and pH were typical of values for this area at all 3 sites (i.e., there was no indication of any abnormalities in ocean properties at the time of sampling). We are now located on the WWMC world map and our values will contribute to a description of the global pH and oxygen distributions. The success of this cooperative monitoring effort should lead to similar joint activities in the future.

### Shore Bird Watching on Crandon Beach

The Marjory Stoneman Douglas Nature Center supported by the Citizen Scientist Project hosted a bird watching activity on October 19, 2013. The walk was led by Rangel Diaz, Park Naturalist for Miami-Dade Parks. Mr. Rangel led an enthusiastic group of birders on a walk along the northern side of Crandon Beach.

The group ranged in age from youngsters to seniors. Mr. Rangel gave the names and characteristics of the birds on or near the beach including pelicans and different types of sea gulls. He provided a spy glass and binoculars which allowed the participants to get a closer look at the birds diving for food. The youngsters, in particular, enjoyed bringing the birds closer. On the previous Thursday, Mr. Rangel gave a lecture on the Shore Birds of Key Biscayne. The lecture provided details on the migration paths of birds that use the Key as a way station on their long journeys, some from the Arctic to Antarctic. The talk provided an excellent foundation for the beach walk and an appreciation for the migratory pattern of many of the birds we see but don't realize the paths they travel to visit the Key.

### The Nature Photo Challenge



Under the direction of Ms Audra Burchfield the Citizen Scientist Project is assisting in a Nature Photo Challenge. The objective of the Challenge is for residents to provide their vision of the Key by taking pictures of the nature surrounding us. The photographs must be of natural environment and/or wildlife.

They can be of the land, sea and/or air attributes of Key

Biscayne, Virginia Key and/or the surrounding environment (e.g., the ocean, Biscayne Bay, etc.). Pictures will be placed in one of two groups Adult (18+) or Child. The contest started on October 21, 2013 and will

end on November 11, 2013. Photographs will be judged and winners announced shortly after.

## The Key Challenge Begins

The Key Challenge is an island-wide initiative involving all the schools on the Island. The Challenge is modeled after the very successful Fairchild Challenge ([www.fairchildgarden.org/education/TheFairchildChallenge/Overview/](http://www.fairchildgarden.org/education/TheFairchildChallenge/Overview/)).

The Key Challenge kick-off was held on November 1 and was attended by teachers from all the Island schools. The objectives and guidelines for the Challenge were presented at the meeting. The objectives of this activity are to *Learn, Experience and Protect* the natural resources of the Key. These goals are to be obtained by increasing student's appreciation and knowledge of the island resources. The Challenge incorporates three disciplines art, writing and technology. These disciplines are further broken down into sub-challenges some of which are for individuals only, others for groups and some for both. Although the sub-challenges are grade dependent, all grades from pre-kindergarten to the 12th grade have several sub-challenges to choose from. Details of the various sub-challenges were distributed at the kick-off and will be available on the Citizen Scientist Project web site ([keyscience.org](http://keyscience.org)). The Challenge will end on March 21, 2014. Each school will select winners for the sub-challenges picked and these entries will be judged to obtain overall Challenge winners for each category.



## The Second Youth Fishing Clinic



On Sunday, November 3, 2013 we hosted our second Youth Fishing Clinic at Bill Baggs State Park. The purpose of the clinic was to teach the children of the Key how to be ethical anglers by teaching them the current rules and regulation of recreational fishing, local species identifications, how to tie fishing knots, how to put a fishing pole together, and how to cast. The day wrapped up with the kids getting to fish from the piers near the Cape Florida Lighthouse. There were approximately 50 children that participated in the event. All of the kids reported that they had learned something new and had a good time. Several fish were caught this time and many children were happy to be outside and see the fish from the pier. Tom Jackson from NOAA participated this time teaching the kids about invasive species and why they are such a problem and how to avoid more becoming introduced to our environment. Overall, it was a great day and we thank our volunteers for assisting us on Sunday. And thank you to everyone that participated!

### [Saturday, November 16th](#)

Bicycle Tour at 1:00 PM to 2:30 PM in Bill Baggs State Park. Contact Park Services Specialist Art Levy to register at (305) 361-8779, ext. 114. Participation is limited.

## Future Events

### [Saturday, January 11th](#)

Mashta Flat Cleanup at 10:00 AM. Volunteers will meet at the Turtle Fountain at the Police & Administration Building, 88 W. McIntyre Street and then take the Village bus to Mashta Point, from where participants will wade out to the flat to collect trash and debris.

## Previous Lectures



### [Tuesday, September 17th](#)

Dr. Andrew Baker, Rosenstiel School of Marine and Atmospheric Science of the University of Miami. Lecture topic: Climate effects on corals.

### [Thursday, September 26th](#)

Panel discussion by REEF members on coral fish and identification.

### [Thursday, October 10th](#)

Dr. Keene Haywood, University of Miami. Lecture topic: Citizen Science and technology.

### [Thursday, October 17th](#)

Rangel Diaz, Coordinator for the Florida Shorebird Alliance and a Park Naturalist for Miami-Dade Parks. Hosted by the Biscayne Nature Center. Lecture topic: Key Biscayne Shorebirds.

### [Thursday, October 24th](#)

Brian Rapoza, Tropical Audubon Society. Lecture topic: Migratory birds of Key Biscayne and the Island's role as an Important Birding Area in the Atlantic flyway migratory path.

### [Tuesday, October 29th](#)

Dr. Elizabeth Golden, Park Biologist, Bill Baggs State Park. Lecture topic: Bill Baggs State Park.

### [Thursday, November 14th](#)

Dr. Tom Jackson, Southeast Fisheries Science Center, NOAA. Lecture topic: Invasive Species at 6:30 PM in the KB Council Chambers.

### [Thursday, November 21st](#)

Dr. Chris Landsea, Atlantic Oceanographic and Meteorological Laboratory, NOAA. Lecture topic: Hurricane Forecasting at 6:30 PM in the KB Community Center.

### [Wednesday, December 11th](#)

Dr. Diego Lirman, Rosenstiel School of Marine and Atmospheric Science of the University of Miami. Lecture topic: Coral mitigation at 6:30 PM in the KB Council Chambers.

## Future Lectures

### [Thursday, January 9th](#)

Dr. Lisa Krimsky, Miami-Dade County Extension Sea Grant Agent. Lecture topic: Mangrove Reclamation at 6:30 PM in the KB Community Center.

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*Contacting the Citizen Scientist Project*

The KB CSP welcomes your input and strives to maintain open and clear lines of communication with Key Biscayne residents, visitors and anyone interested in becoming a Citizen Scientist.

Please use any of the following contact information to get in touch with us.

**ADDRESS:**

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Website: [www.keyscience.org](http://www.keyscience.org)

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