

St. Johns County Andy King Reef

2022 Reef Observations and Report

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St. Augustine, FL 32084

Contract #: 22-GAS-KIS-16164

U. S. Army Corps of Engineers permit: SAJ-2009-00237 (SP-BAL) [Bridge of Lions]



Figure 1 - Underwater Image Captured by Joe Kistel at Andy King Reef on 5-16-22

Introduction:

On 5-16-22 the Andy King Reef site was located within the St. Johns County (SJC) Bridge of Lions artificial reef permit zone and investigated with five scuba divers. Divers explored the underwater reef habitat, made observations visually and with specialized underwater camera equipment, and removed underwater debris hazards encountered. Underwater visibility conditions were challenging, however an abundance of marine life was observed and the artificial reef appeared to be functioning as intended. The concrete structures placed in the ocean to create the Andy King Reef habitat were completely encrusted with marine growth. This growth appears to be supporting a great diversity and abundance of ocean life.

Reef Site Background:

The Andy King reef was deployed in the year 2010 utilizing concrete pilings from the dismantling of the temporary bridge that was in service during a Bridge of Lions rehabilitation project. The Andy King reef resides in SJC Bridge of Lions (BOL) artificial reef permit zone. The BOL permit site is a small deployment zone that is, at the time of this publication, SJC's only active artificial reef permit location. Since the deployment of the Andy King reef in 2010, additional reef materials have been placed in the BOL permit zone. The Honest Jim Blalock reef was created several years later just north of the Andy King reef, and in 2021 four reef balls were placed closer to the Andy King materials.

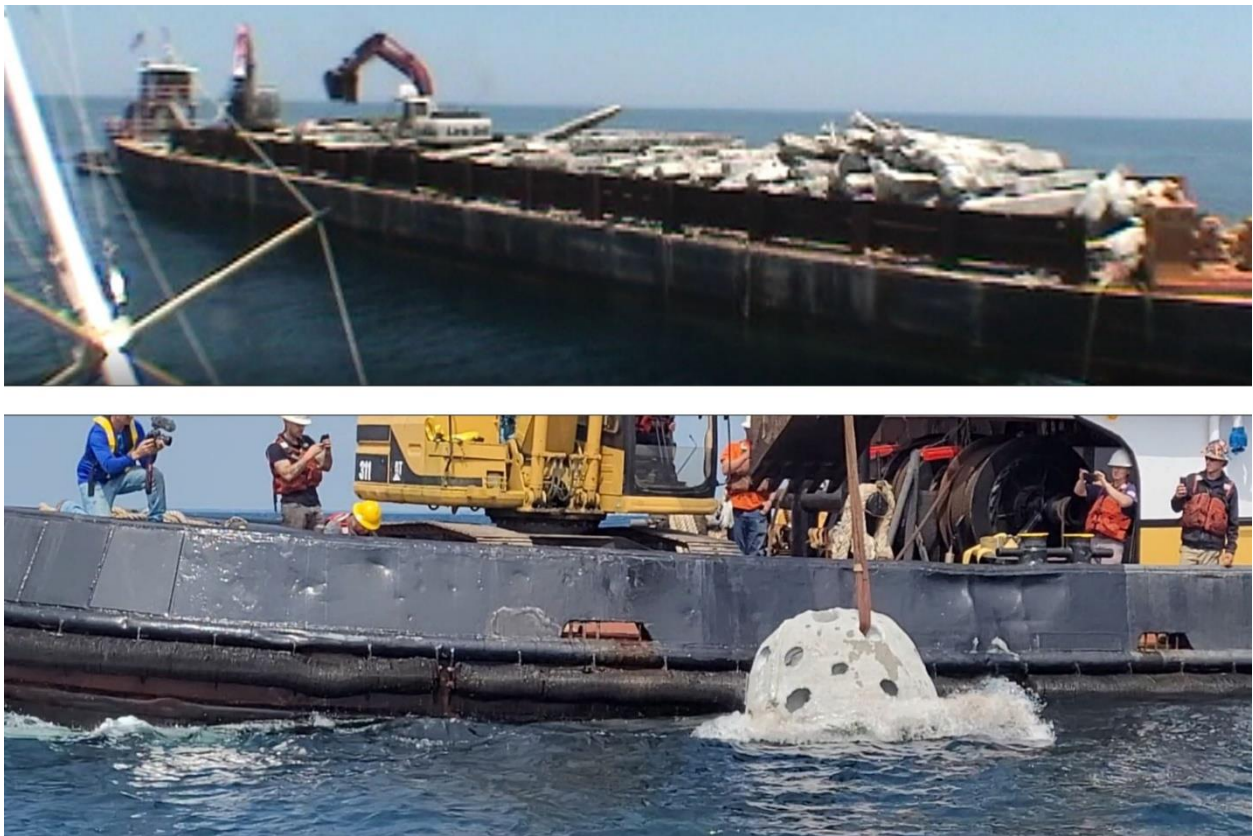


Figure 2 Andy King Reef Deployment Barge in 2010 And Reef Ball Deployment in 2021

Reef Site Location:

The Andy King reef site is within the St. Johns County Bridge of Lions (BOL) artificial reef permit site (SAJ-2009-00237). The BOL site is located approximately 8 statute miles from the mouth of the St. Augustine Inlet at a southeast heading of 107°.

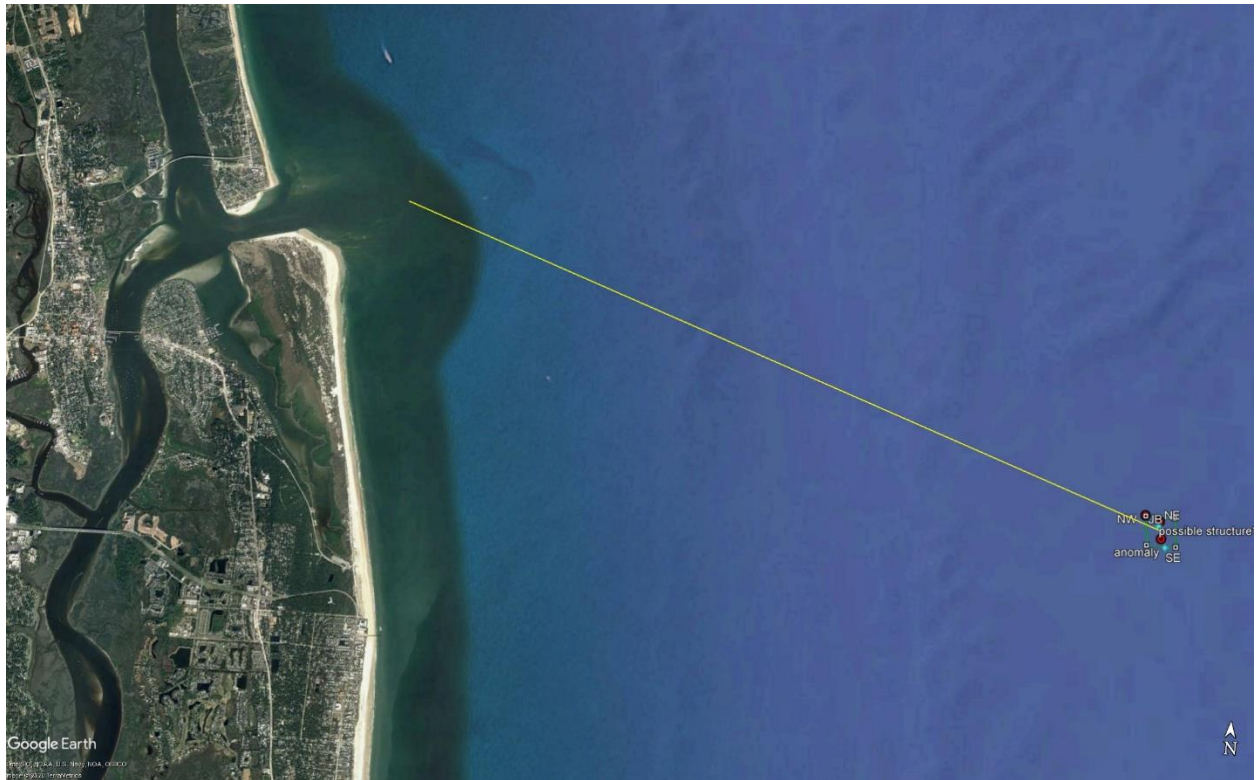


Figure 3: BOL Site from St Aug Inlet

The BOL permit zone is a square boundary box with sides of .25 miles in length. The corner point locations are below...

NW= 29° 52.7550'N
 081° 09.3320'W
 NE= 29° 52.7550'N
 081° 09.0820'W
 SW= 29° 52.5370'N
 081° 09.3320'W
 SE= 29° 52.5370'N
 081° 09.0820'W

The Andy King site resides in the more southwardly side of the permit boundary box. The image below demonstrates side scan imagery created by the Lighthouse Archaeological Maritime Program in 2010. This scan was generated shortly after the Andy King Reef was created but before other reef structures were added within the BOL permit boundaries. The image has been manipulated to scale appropriately with-in Google maps to provide a somewhat accurate idea of the Andy King location and boundaries within the BOL zone. Additional markings on the map image suggest where other structures have been deployed as well.

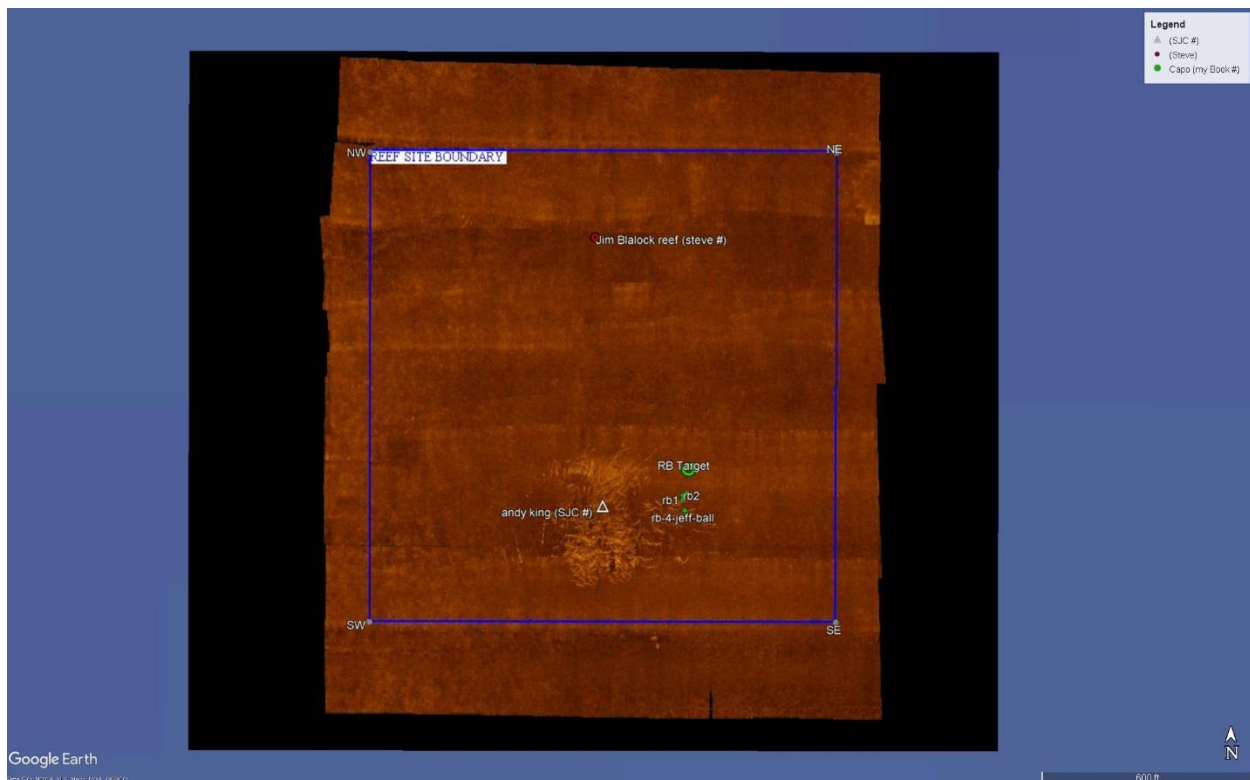


Figure 4: Zoomed in View with LAMP Sonar Survey Image Overlay Showing Underwater Structures of the Andy King Artificial Reef

During our site investigation the project vessel was secured in fixed position using a double anchorage procedure. An anchor was set upstream of the dive site (secured to the vessel bow) and a separate mooring anchor weight was deployed at the target dive location (attached to the vessel's port side) with the GPS coordinates of...

29° 52.587'N
81° 09.207'W

The coordinates above are where divers entered the water to commence underwater dive operations and will be considered the main reef coordinates for the sake of this report. Some other areas where underwater structure was observed, via the vessel sonar system, include the GPS coordinates below...

29° 52.596'N
81° 09.215'W

29° 52.606'N
81° 09.220'W

The Honest Jim Blalock Reef structure was observed via vessel sonar at...

29° 52.726'N
81° 09.207'W

Reef Condition:

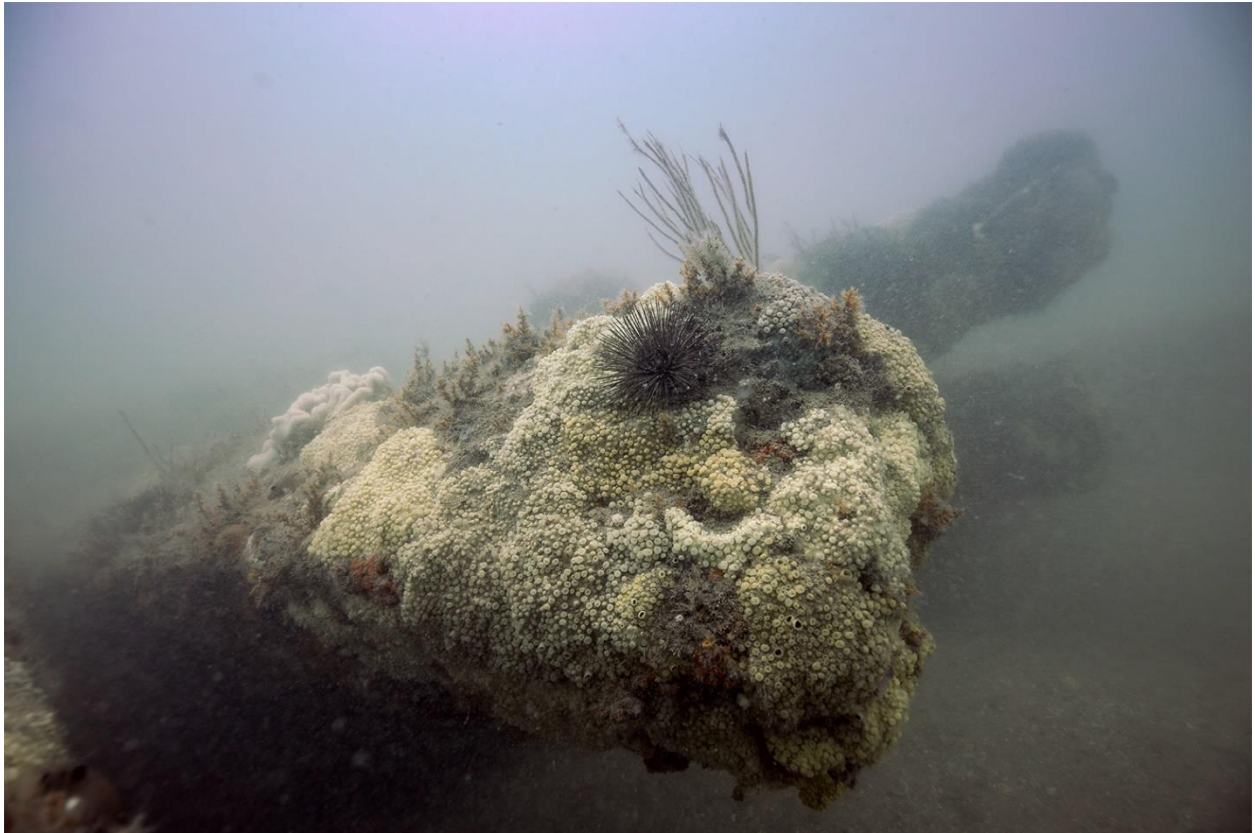


Figure 5 Underwater View of Encrusted Concrete Pilings Observed During the Dive Investigation

Underwater visibility conditions were challenging during the dive expedition at the Andy King Reef. Divers reported less than 10 feet of diver sight visibility. Even in the subpar viewing conditions divers were able to make observations of marine life and reef structures, capture video and still imagery, and remove entanglement hazards.

A variety of fish species were present and the sunken concrete pilings were completely grown over with marine life. Every inch of concrete surface was hidden under coral, sponge, algae and other encrusting life forms that would not exist in the absence of a solid foundation.

The overall reef observed looked well and appeared to be serving as intended. A great diversity of marine life seems to be benefitting from the placement of these concrete pilings. Signs of use by fishermen were present. Anchor rope, snagged monofilament line, and other fishing tackle and debris was found throughout the reef footprint covered. Much of this was removed and will be discussed later in this report.

Structurally, it appears the concrete pilings are fixed in a stable orientation. Concrete pilings are stacked in piles in some areas and lying directly on the ground in less crowded areas. There did not seem to be

obvious signs of any major settling/sinking into the sand. The sea floor seemed relatively firm and stable.







The video below shows a detailed underwater look of the Andy King reef, its inhabitants, and some of the marine debris removal efforts...

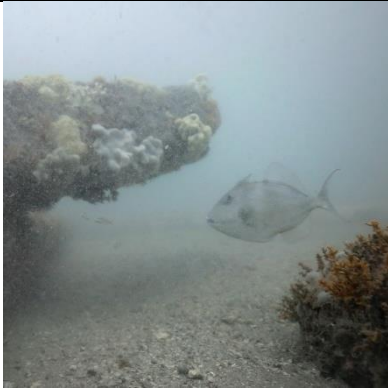
<https://youtu.be/aPmjiSgrmqE>

(YouTube Link)

Fish Observed:

Below is a table composed of images of fish and marine life observed while documenting the Andy King Reef. These images are screen frame captures from video collected during our expedition dives.

		
Belted Sandfish	Black Seabass	Blenny
		
Blue Angelfish	Damsel	Flounder



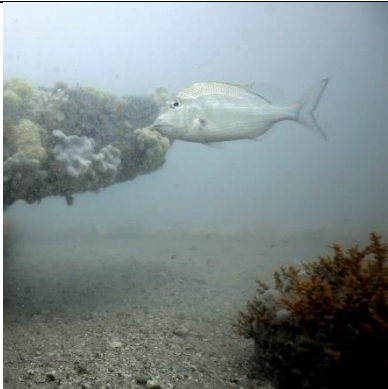
Grey Triggerfish



High Hat



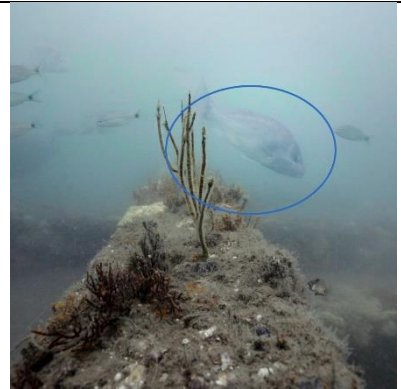
Mangrove Snapper



Porgy



Porkfish



Red Snapper



Sheepshead



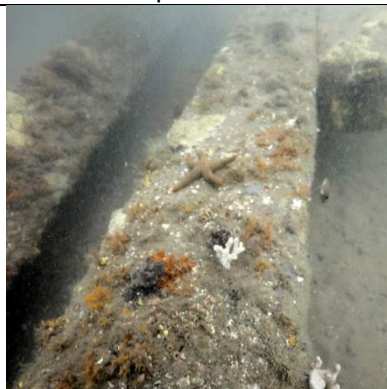
Spadefish



Tomtate Grunt



Wrasse



Sea Star



Urchin

Fish Abundance:

Using video footage collected during the Andy King investigation dives, a general idea of fish abundance was computed. Below are the fish encountered and their relative quantities visually observed.

Fish	Quantity
Spadefish	>100
Tomtate grunt	>100
Great Barracuda	1-5
Grey Triggerfish	6-10
Belted Sandfish	11-20
Porgy	1-5
Blackspot Pinfish	1-5
High Hat	6-10
Blenny	6-10
Wrasse	11-20
Porkfish	6-10
Blue Angelfish	6-10
Sheepshead	1-5
Mangrove Snapper	1-5
Red Snapper	11-20
Black Seabass	1-5
Beaugregory Damsel	1-5
Flounder	1-5

Note: The fish count data provided above was collected within visibility limits at the portions of the reef area observed. Only animals seen could be identified, and there are several variables that could have impacted the observation of species present. In addition, some species may be occasionally present during different seasons and our observations were made during a summer expedition. This information is not likely an accurate description of all the fish species present and/or their respective quantities. The data should provide a general representation of the Andy King Reef biome.

Underwater Debris Removal:

The Andy King Reef is located relatively close to the St. Augustine Inlet and has likely received consistent fishing use since its deployment in 2010. This was evident by items encountered down below. Fishing line was observed over several of the concrete pilings as well as in clustered clumps. Some of the monofilament line had attached fishing tackle including lead weights, hooks, and lures. Several long sections of rope were found and recovered. Two fishing poles and multiple anchors were retrieved, some with chain. A few types of netting were also recovered, some possibly being part of shrimp net or even derelict netting that drifted into and lodged into the reef structure.

Pictures of some of the items divers removed from the Andy King Reef below...



Figure 6. Debris and Entanglement Hazards Removed from the Andy King Reef

Reef Use, Interest, and Survey:

A survey was designed to help better understand the use the Andy King Reef receives and to gauge interest in potential future use. The survey was provided to local fishing and scuba diving organizations as well as regional fishermen and scuba divers via a social media ad campaign.

The results of the survey showing the number of selected responses to each question is below...

Total Surveys Completed = 165

1. Have you visited the Andy King Reef at any point to fish or scuba dive?

No = 58

Yes, to Both Fish & Dive = 22

Yes, to Fish = 76

Yes, to Dive = 9

2. How many times have you visited the Andy King Reef in the past 2 years?

0 = 60

1-5 times = 58

6-10 times = 24

11+ times = 23

3. Do you plan to visit the Andy King Reef in the future?

Yes, to Fish = 93

Yes, to Dive = 11

Yes, to Both Fish & Dive = 38

No = 23

4. Would you utilize the area if a new artificial reef was created near the Andy King Reef?

Yes, to Fish = 91

Yes, to Dive = 8

Yes, to Both Fish & Dive = 53

No = 13

The results above suggest the majority of survey takers are familiar with the Andy King Reef site. The prominent survey takers appeared to be fishermen, however scuba divers made up a substantial percentage of participants as well. Out of 165 survey takers, only 13 responded negatively suggesting they would not utilize the reef area if it was expanded. Furthermore, many of the survey participants that said that they had never been to the Andy King site before, stated they would visit the site if new reef materials were placed in the future.

Summary/Opinion:

The Andy King reef is an artificial reef site regularly utilized by fishermen and scuba divers. The concrete structures intentionally placed in the ocean to create marine habitat are functioning as intended. Each piling is covered in marine growth and a diversity fish species are present. Fishermen and scuba divers visit this reef to experience this marine life.

The reef site resides in the small SJC BOL artificial reef permit area and is adjacent to another artificial reef known as “Honest Jim Blalock” reef. There is little remaining open space to place additional artificial reef structures within the existing permit boundaries. A recommendation would be to consider expanding the permit boundaries if this zone is to be re-permitted in the future.

