St. Johns County Standish Reef

2022 Reef Observations and Report

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St. Augustine, FL 32084

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U. S. Army Corps of Engineers permit: SAJ-50

Figure 1 - Underwater Image Captured by Joe Kistel at Standish Reef on 5-19-22

Introduction:

On 5-19-22 the Standish Reef site was located within the old St. Johns County (SJC) artificial reef permit zone (SAJ-50), and investigated with five scuba divers (+ one stand by diver). 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 ideal, allowing an abundance of marine life to be observed as well as the general layout of reef structures. The reef appeared to be functioning as intended. The concrete structures placed in the ocean to create the Standish 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:

Based on historic references obtained, it appears the Standish reef was deployed in June of the year 1998 and named after Amos Standish. Two loads of miscellaneous concrete structures, including box junctions and culverts, were deployed apparently on the same day (June 22).

Reef Site Location:

The Standish reef is within the old St. Johns County artificial reef permit zone SAJ-50. The reef site is located approximately 13.5 statute miles from the mouth of the St. Augustine Inlet at a northeast heading of 56°. The SAJ-50 permit zone was open from 1995 through 2000.

Figure 2: Standish Reef is Approximately 13 miles From the St. Aug Inlet

The SAJ-50 permit zone is a square boundary box with sides of 1 mile in length. The corner point locations are below…

NW= 30˚ 01.50'N
081˚ 06.45'W
NE= 30˚ 01.50'N
081˚ 05.30'W
SW= 30˚ 00.50'N
081˚ 06.45'W
SE= 30˚ 00.50'N
081˚ 05.30'W

The Standish reef site resides in the more northwardly side of the expired permit boundary box. The image below shows the Standish Reef locations our divers investigated in reference to the SAJ-50 permit boundary corners.

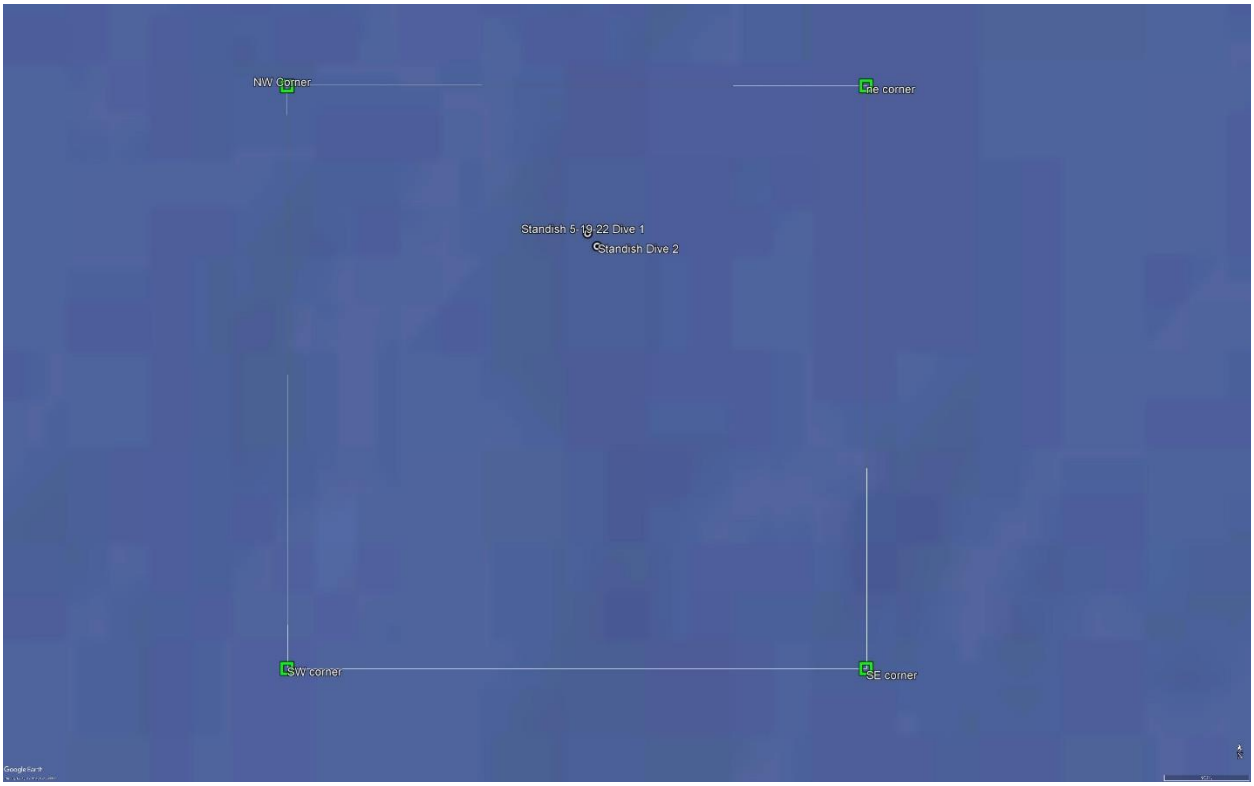


Figure 3: Zoomed in View with Locations of Standish Reef Where Divers Investigated on 5-19-22

During our site investigation the project vessel was secured in fixed position using a double anchorage procedure. A heavy mooring anchor weight was deployed, with an attached line and float, over the intended specific dive location. A traditional anchor was then set upstream of the dive site. The vessel was then aloud to drift back to the mooring float. At this point the anchor rope was secured to the bow and the mooring line secured to port side of the dive vessel. The mooring weight was deployed at the GPS coordinates…

30° 01.248'N
81° 05.852'W

The coordinates above are where divers entered the water to commence the first underwater dive operations, and will be considered the main reef coordinates for the sake of this report. Later on the dive vessel was slightly repositioned and a second area of the Standish reef was explored at the GPS coordinates below…

30° 01.226'N
81° 05.833'W

Reef Condition:

Figure 4 Underwater View of Encrusted Concrete Culverts During the Dive Investigation

Underwater visibility conditions were ideal during the dive expedition at the Standish Reef. Divers reported more than 35 feet of diver sight visibility. 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 structures 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 is benefitting from the placement of these concrete structures. 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.

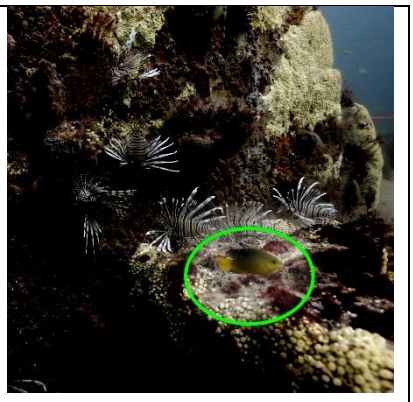
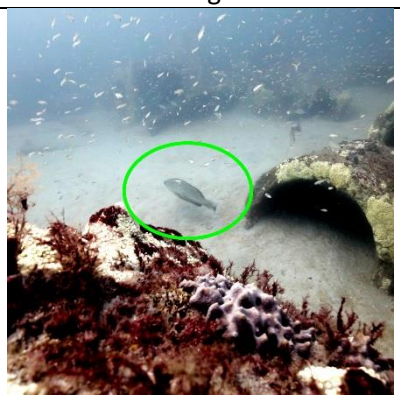
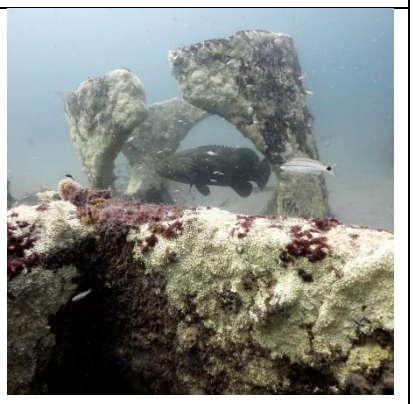
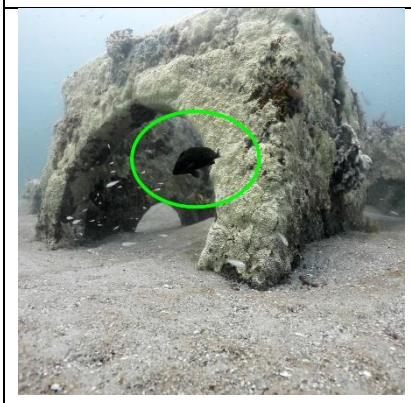
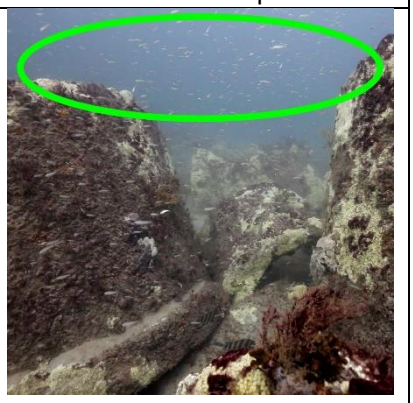
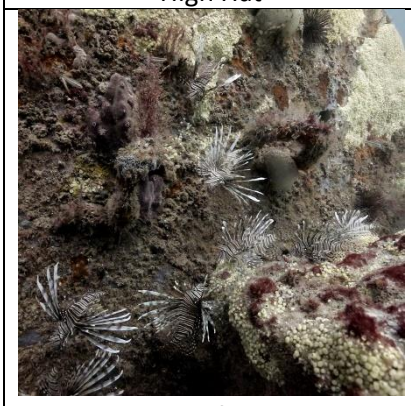
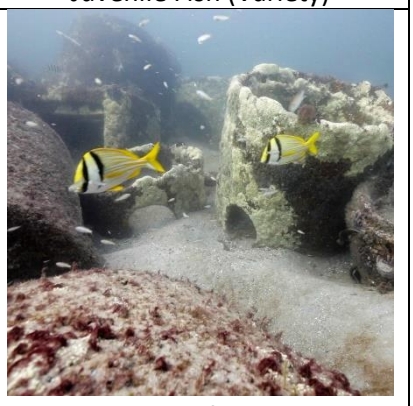
Foundationally, it appears the concrete structures are fixed in a stable orientation. Concrete pieces are lying on the seafloor somewhat sporadically. Some pieces are congregated together slightly stacked,

while others are independently scattered about. The sea floor seemed relatively stable however the sand bottom was somewhat soft. It appears evident that the sand shifts here regularly, likely do to biological activity such as snapper (and other fish) excavations. Major storm activity may cause sand shifts as well. Some of the structures are partially buried due to this sand shifting. The depth recorded was between 71 and 73 feet deep.

The video below shows a detailed underwater look of the Standish reef, its inhabitants, and some of the marine debris removal efforts… (Best viewed in HD which may need to be selected in video player settings)

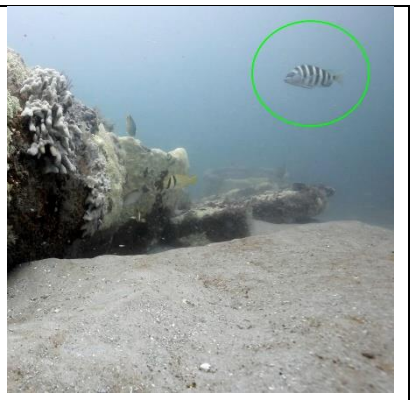
Fish Observed:

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

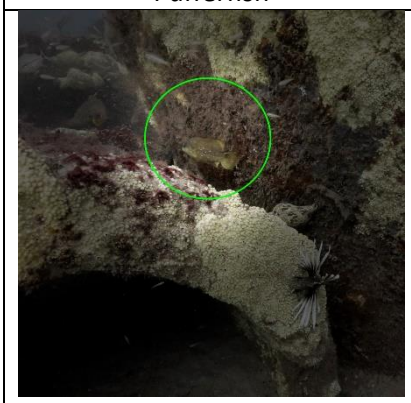
 Barracuda	 Blue Angelfish	 Damsel
 Flounder	 Gag Grouper	 Goliath Grouper
 High Hat	 Jackknife Fish	 Juvenile Fish (Variety)
 Lionfish	 Mangrove Snapper	 Porkfish

Pufferfish

Red Snapper



Sheepshead



Soapfish

Spadefish

Tomtate

Fish Abundance:

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

Fish	Quantity
Beaugregory Damsel	21-50
Blenny	1-5
Blue Angelfish	11-20
Blue Stripped Grunt	1-5
Flounder	1-5
Gag Grouper	6-10
Goliath Grouper	1-5
Great Barracuda	6-10
Blenny	1-5
High Hat	11-20
Jackknife Fish	11-20
Lionfish	11-20
Mangrove Snapper	> 100
Porkfish	11-20

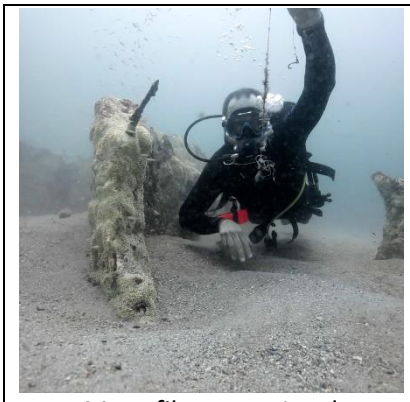
Pufferfish (Bandtail)	1-5
Red Snapper	11-20
Spadefish	> 100
Spotfin Fish	1-5
Triggerfish (Grey)	1-5
Tomtate	> 100

Note: The fish count data provided above was collected within visibility limits at the portions of the reef area observed. Only animals visually observed 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 however provide a general representation of the Standish Reef biome.

Underwater Debris Removal:

The Standish Reef is located a moderate distance from the St. Augustine Inlet and has likely received consistent fishing use since its deployment in the late 90's. This was evident by items encountered down below. Fishing line was observed and some of the monofilament had attached fishing tackle including lead weights and hooks. Several sections of rope were found and recovered. A lost fishing pole with a reel and line was retrieved. A few types of cloth were also recovered, as well as some unidentifiable materials. An inflated balloon was found adrift near the reef site as well.

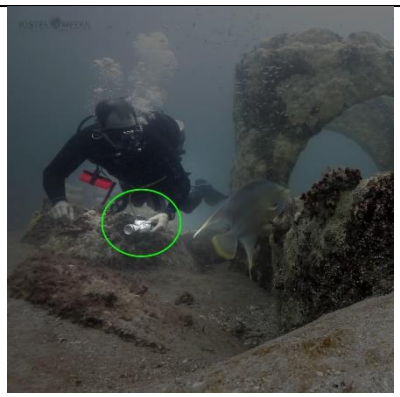
Pictures of some of the item's divers removed from the Andy King Reef below…


Monofilament + Lead


Entangled Monofilament


Fishing Rod

Monofilament + Lead



Beer Can

Fishing Rod/Reel and Line

Figure 5. Debris and Entanglement Hazards Removed from the Standish Reef

Note: It is thought that some debris and entanglement items on the Standish reef are buried and entrapped due to the shifting sands the reef experiences. Monofilament was often found around the base edges of structures and many base edges were buried. It is feasible to think that when these edges were exposed they also entrapped line, and then the line was buried as the structure edges became covered with sand. We also observed what looked like blades of grass sticking up out of the sand in some areas. These were pieces of exposed fishing line with marine growth covering them. When we pulled on these lines we found longer sections of line, and often tackle, buried in the sand.

Reef Use, Interest, and Survey:

A survey was designed to help better understand the use the Standish 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 = 116

1. Have you visited the Standish Reef at any point to fish or scuba dive?
No = 27
Yes, to Both Fish & Dive = 19
Yes, to Fish = 66
Yes, to Dive = 4

2. How many times have you visited the Standish Reef in the past 2 years?
0 = 29
1-5 times = 43
6-10 times = 24
11+ times = 20

3. Do you plan to visit the Standish Reef in the future?
Yes, to Fish = 69
Yes, to Dive = 5
Yes, to Both Fish & Dive = 31
No = 11

4. Would you utilize the area if a new artificial reef was created near the Standish Reef?
Yes, to Fish = 71
Yes, to Dive =6
Yes, to Both Fish & Dive = 32
No = 7

The results above suggest the majority of survey takers are familiar with, and utilize, the Standish Reef site. The prominent survey takers appeared to be fishermen, however scuba divers made up a substantial percentage of participants as well. Out of 116 survey takers, only 7 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 Standish site before, stated they would visit the

site if new reef materials were placed in the future. 94% of survey participants stated they would utilize the Standish Reef area if additional artificial reef habitat was created.

Summary/Opinion:

The Standish 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 structure 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 Standish Reef site resides in the expired artificial reef SAJ-50 permit boundaries. Should the permit be re-opened, with its same geographical perimeter, it would leave ample space for future reef deployment considerations. The entire area is approximately 1 square mile or 640 acres.

Note:
The image below shows an example of observed sand movement around structures likely caused by marine life. Red Snapper may be the likely culprit.

Figure 6: Sand Excavations Caused by Marine Life