

Shark Attack Report
Papahānaumokuākea Marine National Monument
Hawaiian Island National Wildlife Refuge
French Frigate Shoals, Tern Island
16 November 2010

To: Tom Edgerton, Superintendent
From: Ty Benally, Wildlife Refuge Specialist
Date: 16 November 2010
RE: Shark Attack on 7 November 2010 at French Frigate Shoals, Tern Island.

Tom,

This report is submitted to account for the shark attack that occurred at French Frigate Shoals (FFS), Tern Island on Keith Burnett and myself (Ty Benally) on 7 November. This report will provide: statements from Ty Benally and Keith Burnett; minimal recommendations to improve safety orientation for all personnel who recreate by swimming and snorkeling at FFS; and questions to scientists if the translocation of wounded seals and/or pups from intra-islands of FFS to Tern would attract sharks as well.

Rules and Procedures, Swimming and Snorkeling (as given at Tern Island):

Recreational swimming and snorkeling are allowed at French Frigate Shoals under specific refuge policies. Safety is of foremost concern due to the remote and isolated nature of the field station. All swimming and snorkeling are undertaken at one's own risk.

Snorkeling around Tern Island is restricted to the north, east, and west sides of the island. No snorkeling is permitted immediately south of Tern Island. Any recreational beach which has seals or turtles present is closed. Disturbance to monk seals, sea turtles, and seabirds is not allowed during the course of any swimming or snorkeling activities. This includes actions while in the water, or at access locations. No one shall swim or snorkel alone and the buddy system will be in effect at all times. Bathing alone at the shoreline is allowed. Entering waters alone which are over a person's head is not allowed. If an individual is not a strong swimmer, he/she should notify someone else of their intentions to enter the water and expected time of return. If any shark over two meters in length is seen in the area, swimming and snorkeling activities must be ended immediately, or if not begun, postponed.

Weekly Report Notice sent to FWS Honolulu on 11/08/2010:

Shark Attack on Tern Island: Tiger shark attack on Ty Benally and Keith Burnett on Sunday, 7 November at approximately 2:50 p.m... Half of the right flipper on Ty was chopped off by shark with no injuries. Ty was on the water surface while Keith was below on the sea floor at 25 foot depth. Keith witnessed the entire incident. Incident occurred on north shore between the anchor and towards the spot referred to as turtle cleaning station. Estimate length of shark is between 10-13 feet. Snorkeling by the two was started at 2:00 p.m. and all staff on island were informed of the snorkel plan, but only Ty and Keith went to snorkel. Ty then contacted and informed Don Palawski of the incident at about 4:00 p.m. that afternoon. All water recreation is banned for all staff on island until further notice.

Statement by Ty Benally, wildlife refuge specialist, 11/07/2010:

Keith (volunteer) and I went snorkeling this afternoon about 2 pm. At about 3 pm near the turtle cleaning station, which is half way between the anchor and the beaches on north shore, a tiger shark attacked me and bit off my right flipper.

Keith noticed a very large shark approaching me and realized it was a tiger shark, he even said he saw it open its jaws as it was approaching me. In the mean time, my head was above water as I was trying to splash away a juvenile frigate bird that was pulling my breathing pipe, then I noticed my right hind flipper was being pulled rather rigorously and I knew it wasn't Keith as he was just below me, until I looked behind me and saw to my right that the HUGE tiger shark was leaving me. I looked for Keith and he was already swimming towards the shore and I immediately followed. Keith kept on checking on me. At shore, I was nearly out of breath and Keith had to help me out of the water. I had no bites on myself, only that half of my flipper was bitten off.

Keith actually saw the whole thing happen and he will provide his statement. We then informed everyone on island to stay out of the water. I called Don Palawski and informed him of the situation (call made that day at 4:00 p.m.).

We're just all glad that Keith and I were not severely hurt.

Flipper that was bitten off by tiger shark was worn on my right foot.

Tiger shark attack on 7 November at about 2:50 p.m., incident location: from north shore between anchor and turtle cleaning station at FFS/Tern Island.

I'll have Keith provide a statement, and will combine document here for the files.

Statement from Keith Burnett, FWS Volunteer Monday, November 08, 2010:

I was about 20 feet down at the bottom of the channel between the anchor and turtle cleaning station, looking at a moray eel in a coral head when I saw a large flash of silver in my periphery. I start floating up and quickly saw that it was a shark well bigger than any I had seen out here, about 10-15 feet away showing me its broadside and stripes. I froze while floating up and watched it swim quick but casual right for Ty who was at the surface. It looked to me like Ty had seen it as he happened to stick his fin in the sharks face within a second of it taking a bite out of his flipper, but he later told me a frigatebird was trying to steal his snorkel and never saw it coming. It looked to be about twice as long as Ty was tall, and by this time I was 5 feet from the surface about 15-20 feet away from him. I saw the shark chew a few times on the flipper, turn and swim away, hoping it missed his foot. When I didn't see any blood, I swam straight to the shore, looking back the whole time to see if Ty was following OK and if the shark wasn't coming back. The water was crystal clear so I really got a good look at everything except it passing over me. It didn't seem to me that it was going full throttle and perhaps it was being

more curious and opportunistic rather than aggressive. Regardless, it was a blessing that no one was hurt.

Other details not mentioned in either statements:

Ty Benally, 295 pounds, 6'2" tall; at the time of attack he was wearing green swim shorts and green tee shirt, fins black scubapro at 25 inches long; 12 inches was bitten off the left side of the lower half of the fin, and 2 inches from his toes, worn on his right foot.

Keith Burnett, 136 pounds, 5'10" tall; was wearing grey swim shorts and was shirtless, fins yellow.

Keith had thought Ty had seen the tiger shark as he saw Ty was kicking his flipper into the shark's face. Seconds before that moment, a juvenile frigate bird was pulling at Ty's snorkel. Ty had his head and some of his upper torso out of the water by flipping his fins to have enough propulsion to have his head above water, as snorkelers often do to readjust their masks or to breathe without the tube, in order to splash water with both hands up towards the frigate bird to chase it away. Just at that moment his right flipper was hitting the shark in the face without Ty realizing that the shark was approaching him. Keith saw the shark approach Ty with opened jaws. When Ty's head and arms returned below the water surface is when Ty felt several rigorous tugs on his right flipper, and saw a tiger shark casually swimming away as he looked to his right side to see what it was. Keith saw the shark chewing on the flipper piece as it swam away.

The shark thought it had consumed a fleshy flipper as it bit off the fin from Ty. Perhaps the fin's texture and taste prevented the shark from a reattack on Ty and/or Keith. After not seeing blood from Ty is when Keith swam towards the shore and Ty immediately followed. It was suggested that the water splashing may have caused the shark to attack.

After the attack, Ty wanted to inform the remainder of the volunteers to stay out of the ocean. Trish Jackson was informed first at the barracks, but Sarah Harvey and Phillip Howard could not be found in the barracks or at the west end of the island. Keith and Ty went to the east side on bikes, where Keith found them on east beach recreating in ankle deep water. They were also informed of the attack by about 3:30 p.m. Everyone returned to the barracks where Ty contacted FWS Honolulu and spoke with Don Palawski at 4:00 p.m. Don provided details to Ty that shock may occur for both Ty and Keith and to keep him updated on their conditions. As acting manager, Ty banned all snorkeling and swimming in the ocean until further notice.

Trish Jackson nearly went snorkeling that afternoon. She is a retiree and requires glasses for seeing. She was having problems with her eyes that afternoon and declined to join in the snorkel. She was glad to have not gone snorkeling, she later said.

Post effects:

Keith and Ty were not able to sleep soundly on the first night due to shock, 7 November. Ty fell asleep until about 2:00 a.m. with the aid of Tylenol PM (two pills); and Keith was up until 4:00 a.m. Monday morning.

Shock effected everyone differently:

Ty had wanted verbal communication from Honolulu, but he did not call anyone nor asked to talk to someone. Honolulu did give emails of support, but did not call until Tuesday, 9 November, for a staff meeting. After the staff meeting, Keith and Ty were able to talk with Ray Born and Tom Edgerton about the effects of shock and about the attack in general. Ray Born provided contact information for EAP counseling. Later, Don Palawski continued to email Ty about their conditions and experiences and provided encouragement to talk/write about the experience or to call EAP. Ty was severely sore in his left hamstring and took ibuprofen.

Keith was more in shock than Ty since he witnessed the attack. He said he was okay, but was tired during the day, and was drinking more coffee than usual. Both he and Ty talked often of the attack and shared details especially if startled by a rapid presence of someone or a bird that landed too close. Ty also felt tired during the day, and took naps during lunch, when he never did so before.

The other volunteers were informed on 9 November that they, too, could call EAP for counseling should they have experienced any negative feelings. Keith and Ty would remain on Tern until 23 November when they return to Honolulu by flight.

Re-sighting of tiger shark:

Email sent to staff from Ty Benally on 11 November:

Today at 3:45 p.m., Phillip and Sarah noticed a large shark from diesel beach out on the reefs (south of barracks). Phillip says he saw a very large dorsal and tail fin at the reefs that were characteristic of a shark, he says. About 3:50 p.m. Phillip, Sarah, Keith and Ty were all on the roof top of barracks searching for the shark. They located one, about 50-60 feet SE from the warehouse. This area is where the seal pup would be located. Keith got a photo of the shark. It was not a seal because it did not surface for air during the time when we had monitored it from a distance. This may or not be the same shark from last Sunday's shark attack.

No one was swimming at Diesel beach. Ty kindly reminded all volunteers that everyone is banned from swimming for their own safety.

Email sent to FWS from Ty Benally on 16 November:

Keith noticed a weaner on south beach with a missing (left) upper flipper, due to a shark bite. Keith took pictures and sent to FWS Honolulu. This individual is still alive. We will also check on the mom and pup seal this morning.

All volunteers saw the shark bitten seal at south beach, and realized for themselves the dangers of swimming in shark waters. Swimming at Tern is still banned for their safety.

Suggestions for staff and volunteer safety:

The following are recommendations to provide safety and orientation to all personnel who swim and/or snorkel at French Frigate:

1. Provide orientation about the ocean environment and dangers posed by sharks, including basic information to shark biology and their behavior towards prey. Most staff and volunteers' education is solely on birds or other wildlife "land" species. An introduction

to shark biology and behavior would tune them in on the potential dangers that exist by snorkeling at French Frigate.

2. Safety orientation: first aid response, the use of rescue equipment, COOP on how to contact emergency personnel in Honolulu, the principles of the buddy system to be used while snorkeling, saving someone in a swimming emergency (ie shark attack), and the purposes of informing all island personnel about snorkeling plan(s).
3. Refuge personnel stationed on Tern should have wilderness first aid training, shark attack rescue training or orientation to one, and practice safety at all times for all staff and volunteers.

Discussions between Sarah Harvey (volunteer) and Ty began about the dangers of swimming in around Tern or at other locations of FFS. Other volunteers, and maybe staff, too, have informed Sarah that there are no real dangers from sharks, that they wouldn't attack, and sharks only feed at night. Ty had noticed, even before the attack, how everyone at Tern was loose and worry free about shark(s) as they would snorkel as a group, but not totally in pairs, but alone, at Tern or other locations of the atoll. After this shark attack, we realized we really had no plans in place if any injuries had occurred. Snorkeling around Tern and throughout French Frigate, however, has always included the buddy system, but again, used fairly loosely and without any formal plans for any unforeseen emergency caused by shark attacks, swimming, or drowning. Managers may have had plans in mind for any post emergencies from a snorkel, should an accident have occurred, but there were no discussions or orientations to the group prior to snorkeling. Normally, we all had snorkeled and planned to return safely each time.

Questions to PMNM staff and scientists:

During the summer of 2010, approximately 7 seal pups were translocated to Tern from Trigg Island by NMFS monk seal biologists. Trigg is a known islet for seal pups that become wounded or killed by tiger sharks. This potential prey base at Trigg is studied by NMFS monk seal and shark biologists for the past two summers since monk seals are an endangered species. One question raised by Phillip Howard is: wouldn't this prey base of seal pups that is transferred from Trigg to Tern include a predator transfer as well? Mr. Howard, is a candidate for a master's degree from New Hampshire. NMFS biologists informed him, at the time, that it would take about a year for the sharks to notice a change of prey location towards Tern. Discussions between Ty and volunteers here seem to agree that the sharks would immediately notice the change of this prey base towards Tern, since sharks have the ability to detect prey by use of their sensory organs through the electro-conductive salt water.

Keith reminds that a seal pup had been born on Tern on Oct 24, and that perhaps this shark can "taste" it around the island. He advises that snorkeling should be postponed when seal pups are freshly born on Tern Island, at least for several weeks.

Sarah Harvey suggested that perhaps this shark could be of two things:

1. A vagrant who is only passing through the atoll; or
2. This individual is or has included Tern in its territory for prey.

Closing statement

No shark was observed before 7 November or any time before 2:00 p.m. on that date. We are fortunate that no one was seriously injured in this tiger shark attack. All previous personnel from this shark attack at Tern have been fortunate that no injuries or shark attacks occurred to them while swimming and/or snorkeling at FFS. We have experienced that sharks will attack at day, and perhaps, the appearances of this shark at Tern is correlated with the seal pup being born on Tern fairly recently. We have learned that the buddy system is important to use, and we should continue its use. We have also learned that orientation for personnel to save someone from such an attack, would be helpful, because Keith wasn't sure what to do had Ty been severely injured, either swim to shore for his own safety or help Ty from the attack.

Most staff and volunteers who arrive at Tern may or may not be aware of the potential dangers that exist to swimming in the ocean at FFS when it comes to the potential of shark attacks. Most of these personnel are not from coastal communities and/or have limited experience in recreation in a marine environment. As an agency, I suggest that all personnel should have an orientation as suggested here, and a general discussion of safety plans and use of the buddy system should take place before any swimming or snorkeling at FFS. Having safety plans in place and having our questions answered by science will not stop shark attacks, but it will help team members to seriously take into account: 1) to look out for each other while swimming and snorkeling at this remote atoll; 2) to help each other(s) if these dangers do occur while swimming, boating, and/or snorkeling at FFS and 3) an orientation to sharks will make them aware that (large) sharks do exist at any time, day and night. Most people will believe that sharks will not attack humans and not necessarily during the day. These concepts must be changed by promoting safety and orientation for all personnel who swim and snorkel at FFS, as sharks are unpredictable and can appear to feed during daylight and do pose danger to humans. All swimming and snorkeling are undertaken at one's own risk, indeed.

Report composers:

Ty Benally, wildlife refuge specialist;
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Report editors:

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